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Air force surveys in geophysics

No. 115

The ARDC model atmosphere, 1959

R. A. Minzner

K. S. W. Champion

H. L. Pond

August 1959

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Air Force Surveys in Geophysics

No. 115

THE ARDC MODEL ATMOSPHERE, 1959

R. A. Minzner

K. S. W. Champion

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August 1959

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FOREWORD

The 1959 ARDC Model Atmosphere is a revision of the 1956 ARDC Model Atmosphere based on new rocket and satellite data. To an altitude of 53 kilometers the two models are the same. Following the methods developed for the 1956 model, the defining function of the atmosphere is the molecular-scale temperature. Figure 1 shows this function for both the 1956 and 1959 models. The quantities tabulated, defining equations, definitions, and conversion factors are those used in the U. S. Extension to the ICAO Standard Atmosphere.²⁵ However, in the present model the tabulation is given only in integral values of the geometric altitude with corresponding values of geopotential altitude given in an adjacent column.

Only average values of the various atmospheric properties are plotted. It is realized that density, pressure, temperature, composition, and related properties are functions of both position on the earth's surface and time. However, the amount of reliable data on these variations at altitudes above 30 km is so scant that it is not included in the present model. The 1959 model molecular weight curve probably represents the molecular weight at high latitudes, such as Fort Churchill, where the experimental data were obtained. At lower latitudes the molecular weight may be nearer the curve given in the 1956 model.

Since the present model is strongly dependent on the 1956 ARDC Model Atmosphere and the U. S. Extension to the ICAO Standard Atmosphere, it is appropriate to acknowledge the contribution of the many scientists who helped in the development of these models.

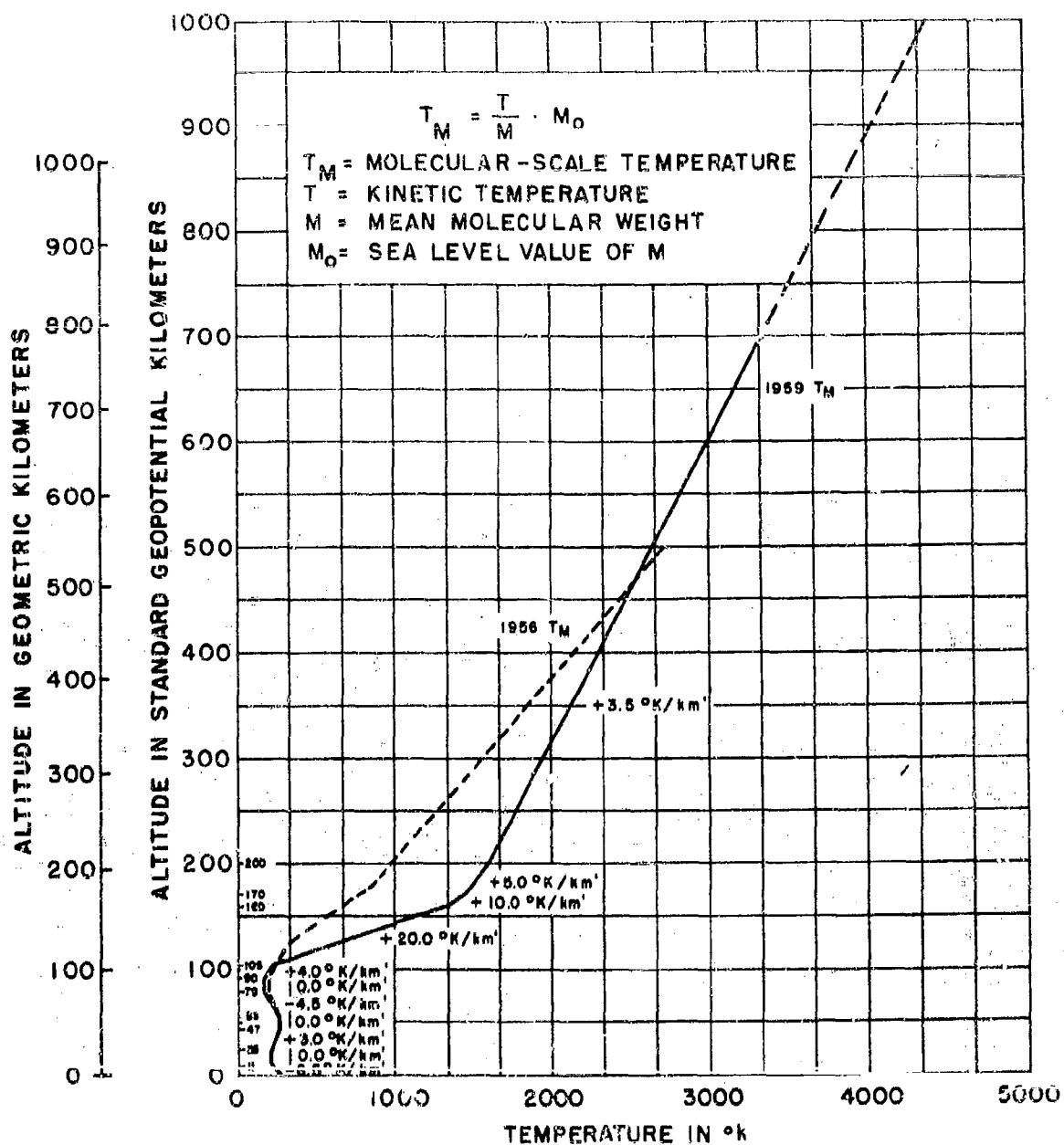


FIG. 1. Molecular-scale temperature vs. altitude. (The defining property of the model)

ABSTRACT

A model of the earth's atmosphere to 700 kilometers is given. Below 53 kilometers the present model is the same as The ARDC Model Atmosphere 1956. Above this height, changes have been made based on data deduced from rocket flights and from the rate of change of the orbital period of satellites. At approximately 600 kilometers the new model gives densities that are 20 times higher than the 1956 model. Below 600 kilometers the two models gradually come closer together and finally cross at about 150 kilometers. Between 90 and 150 kilometers the density for the 1959 model is lower, being about one half that of the 1956 model at 120 kilometers. At the present time, the maximum altitude at which density data from a satellite has been obtained is just below 700 kilometers. For this reason, the tables end at 700 kilometers. Dashed lines in the plots present a tentative extrapolation of the data to 1000 kilometers.

The value of the molecular weight, like other atmospheric properties, probably depends on both location and time. The 1959 model curve probably represents the molecular weight at high latitudes, such as Fort Churchill, where the experimental data were obtained. At lower latitudes the molecular weight may be nearer the curve given in the 1956 model.

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* Tabulation is on integral values of geometric altitude, but the corresponding (nonintegral) values of geopotential altitude are included.

LIST OF SYMBOLS AND ABBREVIATIONS

a	acceleration	H'_s	geopotential scale height
a	radius of the earth at the equator	H^*	modified geopotential altitude
b	subscript indicating base or reference level	i	subscript indicating ice point value
BTU	British Thermal Unit	in.	inch
$^{\circ}\text{C}$	degrees, in thermodynamic Celsius scale	in mi	international nautical mile
C_s	speed of sound	$^{\circ}\text{K}$	degrees, in thermodynamic Kelvin scale
cal	calorie	k	thermal conductivity
cm	centimeter	kg-cal	kilogram-calorie
E	energy	kg	kilogram (mass)
$^{\circ}\text{F}$	degrees, in thermodynamic Fahrenheit scale	kgf	kilogram (force)
f	ellipsoid flattening	kg-mol	kilogram-mole
F	force	km	kilometer
fps	foot-pound-second system of units	km'	standard geopotential kilometer
ft	foot	kwhr	kilowatt hour
ft'	standard geopotential foot	L	mean free path
G	dimensional constant in geometric-geopotential relationship	L_M	molecular-scale-temperature gradient
g	acceleration of gravity, effective value	l	length
\bar{g}_e	acceleration of gravity at the equator	lb	pound (mass)
gm	gram	lb f	pound (force)
gm-mol	gram mole	M	mean molecular weight of air
H	altitude in geopotential measure	m	meter
H_g	mercury	m'	standard geopotential meter
H_s	scale height	m	mass
		mb	millibar
		mks	meter-kilogram-second system of units

N	Avogadro's number	t	temperature in nonabsolute thermodynamic scales
n	number density (positive integer in Eq. (B-1))	thsd ft	thousands of feet
n_L	Loschmid's number	t_i	ice point temperature in nonabsolute thermodynamic scales
nt	newton	\bar{V}	particle speed (arithmetic average)
o	subscript indicating sea-level value	v	mole volume of air under existing conditions of T and P
P	pressure	Z	altitude in geometric measure
pdl	poundal	β	constant used in Sutherland's viscosity equation
$^{\circ}\text{R}$	degrees, in thermodynamic Rankine scale	γ	ratio of specific heats
R^*	universal gas constant	η	kinematic viscosity
r	effective radius of earth	μ	coefficient of viscosity
S	Sutherland's constant	ν	collision frequency
sec	second	ρ	mass density
T	temperature in absolute thermodynamic scales	σ	effective collision diameter of a mean air molecule
T_i	ice point temperature in absolute thermodynamic scales	φ	latitude of the earth
T_M	molecular-scale temperature in absolute thermodynamic scales	ω	specific weight
t	time		

THE ARDC MODEL ATMOSPHERE, 1959

1. INTRODUCTION

New data from rockets and satellites have indicated the need of revising The ARDC Model Atmosphere, 1956.^{2, 3, 26} The new data consist of density measurements on rockets in the region of 110 to 220 geopotential kilometers (km') and densities inferred from the change in period of orbit of satellites having perigee altitudes of 170 to 650 km'. The actual data on which the 1959 Model Atmosphere is based are shown in Fig. 2. In the lower right-hand corner of this figure are listed eight rocket flights from which density data for altitudes above 100 km' was obtained. The data from flights of 7 March 1947, 22 January 1948, and one point at 219 km' from the flight of 7 August 1951, were used in derivation of the 1956 ARDC Model. The remaining five flights and additional data from the 7 August 1951 flight were not available for the 1956 Model. Between 120 and 130 km' the spread of data is within about a factor of two. If the data of the test of 18 October 1955 are neglected because of its unusual variation with altitude, the mean of the data between 120 and 130 km' is considerably below the 1956 Model. In the region of 200 km' the spread of data is covered by a factor of 20 and the mean of the data is about four or five times higher than that of the 1956 Model. The horizontal arrows in Fig. 2 indicate the possible errors in data based on estimates given in the references listed in Appendix A. Rocket data for lower altitudes is shown by shaded areas in Fig. 2 which represent the results of a large number of individual rocket flights.

Densities computed from satellite observations are also shown in Fig. 2. The new calculations by Champion² were made using the method developed by Sterne²⁸ and orbital data supplied by the Air Force Cambridge Research Center Project "Space Track," Project "Vanguard," and the Smithsonian Astrophysical Observatory. Sterne's equation relates the density to the rate of change of period. The particular satellite is specified by its effective cross-sectional area, mass, and drag coefficient.

(Author's manuscript approved 29 July 1959)

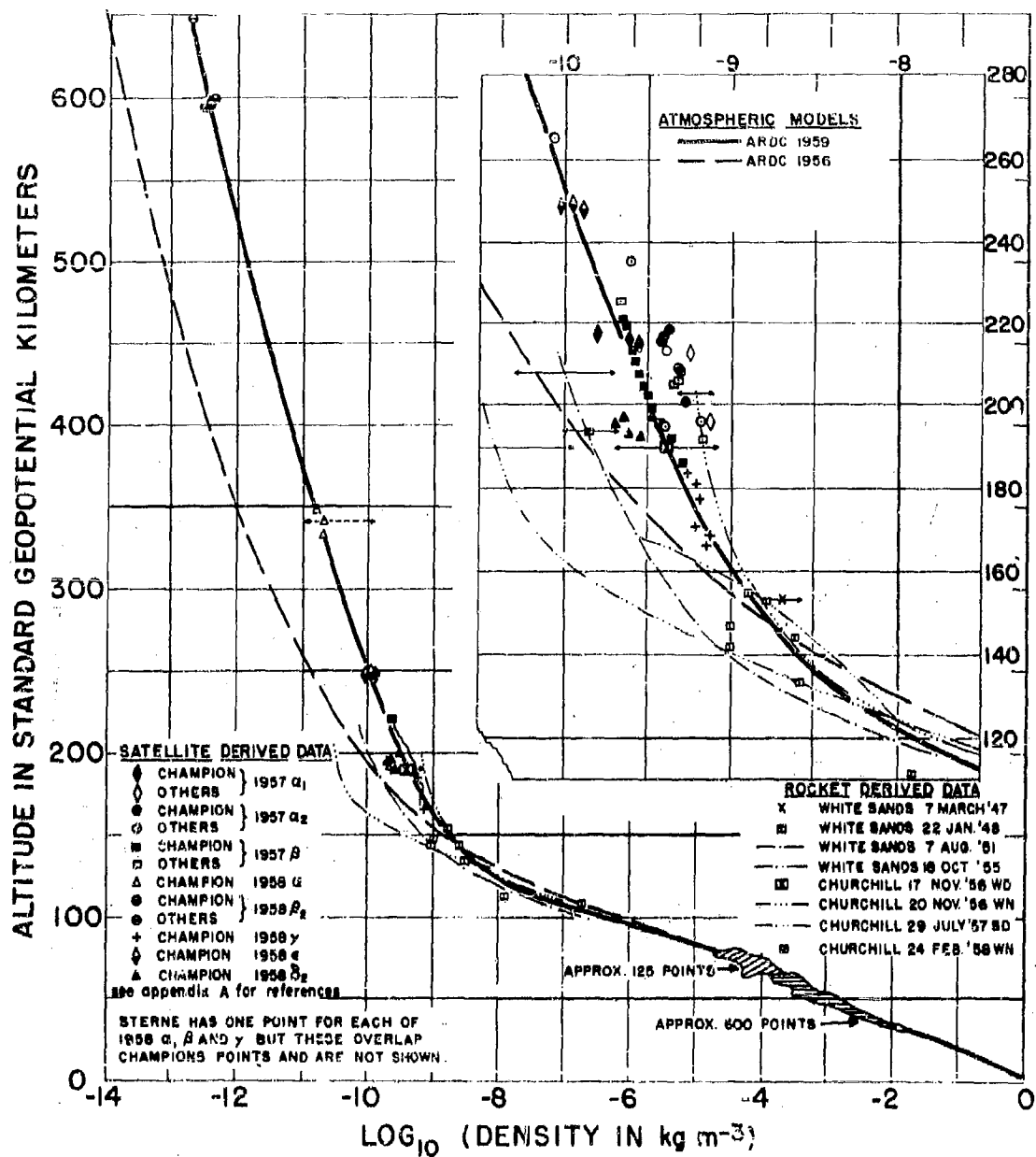


FIG. 2. Variation of atmospheric density with altitude.

For a sphere and for other bodies with their orientation varying randomly, the effective cross-sectional area can be taken as one-quarter of the total surface area of the body. A nonstabilized satellite can be considered randomly oriented if its motion is averaged over a sufficiently long time. For a cylinder, such as the Explorer satellites, the effective cross-sectional area could change by as much as a factor of 10 depending on its orientation. The appropriate range of densities obtained by Champion from Explorer I (1958 α) data for the limiting cases of the satellite side-on (lower density) and end-on (higher density) at perigee is indicated by the horizontal dashed arrow in Fig. 2. The range for other Explorer satellites (1958 δ and 1958 ϵ) is the same, and for Sputnik II and III (1957 β 1 and 1958 δ 2) the range is somewhat smaller.

In addition, Champion³ has also investigated the possible variation in the drag coefficient for different-shaped bodies moving in free molecule flow. The shapes considered were cones, cylinders, and truncated cones. The variation in the drag coefficient from the value of 2 for a sphere was about 25 to 50 percent.

There is some doubt about the densities derived from Sputnik I carrier rocket (1957 α 1) and Sputnik II (1957 β 1), since the values of the ratio of mass to effective cross-sectional area have not been published for these satellites. The densities plotted for these satellites were calculated by using values of the ratio of mass to effective cross-sectional area based on the estimated size and mass of the satellites.

Although there is some spread of the computed densities, all values derived from satellites (extending from 170 to 650 km') are higher than the corresponding densities of the 1956 ARDC Model. The difference is small at 170 km' but increases with altitude. As shown in Fig. 2, the estimated mean values of densities derived from satellite data tend to lie on a smooth curve. At 600 km' the new curve is about twenty times higher than the 1956 model, but the two curves gradually come closer together and finally cross at 153 km'. Between 170 and 200 km' the densities derived from rocket and satellite data are in reasonable agreement. Between 90 and 153 km', the density of the 1959 model is

somewhat lower, being about one-half that of the 1956 model at 123 km'. The present model is limited to 700 km', since the greatest altitude for which density data were available was 656 km' for Vanguard I (1958 β 2). (Dashed lines in Figs. 4, 5, and 6, pages 27, 28 and 29 present a tentative extrapolation of the data to 1000 km.)

2. BASIC ASSUMPTIONS AND FORMULAS

2.1 Perfect Gas Law and Hydrostatic Equation

The atmosphere is assumed to obey the perfect gas law,¹⁴

$$\rho = \frac{PM}{R^* T} \quad (1)$$

where, in mks units,

ρ = density in kg m^{-3} ,

P = atmospheric pressure in newtons m^{-2} ($\text{kg m}^{-1} \text{sec}^{-2}$),

T = temperature in $^{\circ}\text{K}$,

R^* = universal gas constant, 8.31439×10^3 joules $\text{kg}^{-1} (^{\circ}\text{K})^{-1}$,

M = molecular weight of air (dimensionless).

The air is assumed to be in hydrostatic equilibrium¹⁵ and to satisfy the differential equation,

$$dP = -g \rho dZ \quad (2)$$

where

g = acceleration of gravity in m sec^{-2} ,

Z = geometric altitude in m.

Equations (1) and (2) may be combined to obtain the usual differential form of the barometric equation,

$$d \ln P = \frac{-g M}{R^* T} dZ \quad (3)$$

which contains five variables. For calculating pressures below 30 kilometers (100,000 ft), it has been customary to assume g and M to be constant. Thus the replacement of T by a linear function of Z permitted Eq. (3) to be simply integrated.

For the high altitudes to which these tables are computed, the

simplifying assumptions of constant g and M are no longer valid. The replacement of g and M by even very simple functions of Z produces considerable complexity upon integration.³¹ The mathematical simplicity of the low-altitude calculations may be retained, however, without the invalid assumptions of constant g and M , through two transformations of variables. These are the combining of g and Z into a single new altitude parameter, "geopotential H ," and the combining of T and M into a single new temperature parameter, molecular-scale temperature T_M . Defining T_M as a series of linear functions of H then permits a simple integration with the resulting equations in exactly the same form used in earlier standards. Values of Z may then be extracted from H by using the known relationship between g and Z , and values of T may be extracted from T_M by assuming a function M of H .

2.2 Relationship Between Geopotential and Geometric Altitude

Following the concept originally introduced by Bjerknes,¹ vertical displacement can be expressed in units of geopotential.⁷ Geopotential at an altitude Z is the potential energy of a unit mass at that altitude relative to the potential energy of that same unit mass at sea level. Geopotential H of a point at altitude Z may be rigorously defined as the increase in potential energy of a unit mass lifted from mean sea level to Z against the local force of gravity.

Mathematically this definition becomes,

$$GH = \frac{\Delta E}{m} = \int_0^Z g(Z) dZ \quad (4)$$

where

- ΔE = increase in potential energy in joules,
- m = mass of the body in kilograms,
- $g(Z)$ = acceleration of gravity in $m \text{ sec}^{-2}$ expressed as a function of Z ,
- H = geopotential of a point at altitude Z ,
- G = proportionality factor depending on the units of H .

Solving Eq. (4) for H in terms of Z yields:

$$H = \frac{1}{G} \int_0^Z g(Z) dZ \quad (5a)$$

The differential form of this relationship to be used later is

$$GdH = g(Z) dZ \quad (6)$$

Geopotential is energy per unit mass. The basic unit of geopotential used in this model is one standard geopotential meter, m' , which is defined to be $9.80665 \text{ m}^2 \text{ sec}^{-2}$. If one kilogram is moved through an interval of one standard geopotential meter, its potential energy is increased by 9.80665 joules. Geopotential is essentially proportional to the product of the value of the acceleration due to gravity and the distance moved in the vertical direction. The constant of proportionality has been chosen so that if $g = 9.80665 \text{ m sec}^{-2}$, an interval of one standard geopotential meter corresponds to a distance of one meter.⁷ If g is less than this value, the distance in meters corresponding to one standard geopotential meter is increased.

The above definitions of geopotential and the geopotential meter are in accord with international convention.^{7, 13} However, it is important to note that several recent reports have used a different definition of geopotential altitude.^{28, 32} The defining equation in this case is

$$H^* = \frac{1}{g(o)} \int_0^Z g(Z) dZ \quad (5b)$$

Here H^* has the dimension of length, but the numerical magnitude is the same as that of H defined by Eq. (5a), provided the same sea-level value of g is used. Thus the tables of geopotential altitude are the same for either definition. For those who prefer the second definition,

⁷ At sea level at latitude $45^\circ 32' 33''$, g has the value $9.80665 \text{ m sec}^{-2}$ within two parts in a million.

It is only necessary to replace H by H* throughout and define H* by Eq. (5b).⁷

To evaluate geopotential as a function of geometric altitude from Eq. (5a), a relationship between g and Z must be established. In an unpublished document,²⁰ Lambert prepared a refined version of his previous equation²¹ relating g to both altitude and latitude. The following is an evaluation of the refined equation for 45° 32' 33" latitude:

$$\begin{aligned} g(Z) = & 9.8066500 - 3.0854195 \times 10^{-6} Z + 7.2539455 \times 10^{-13} Z^2 \\ & - 1.5167771 \times 10^{-19} Z^3 + 2.9724620 \times 10^{-26} Z^4 \\ & - 5.5905936 \times 10^{-33} Z^5 + 1.0219762 \times 10^{-39} Z^6. \end{aligned} \quad (7)$$

Substituting Eq. (7) into Eq. (5) and integrating gives

$$\begin{aligned} H(Z) = & Z - 1.5731262 \times 10^{-7} Z^2 + 2.4656553 \times 10^{-14} Z^3 \\ & - 3.8667054 \times 10^{-21} Z^4 + 6.0621354 \times 10^{-28} Z^5 \\ & - 9.5013649 \times 10^{-35} Z^6. \end{aligned} \quad (8)$$

The following relationship, derived from Eq. (8) by use of Maclaurin's series, is used for computing Z for integral values of H:

$$\begin{aligned} Z(H) = & H + 1.5731262 \times 10^{-7} H^2 + 2.4837966 \times 10^{-14} H^3 \\ & + 3.9380519 \times 10^{-21} H^4 + 6.2746418 \times 10^{-28} H^5 \\ & + 1.0054032 \times 10^{-34} H^6. \end{aligned} \quad (9)$$

A much simpler relation between H and Z, based on the inverse-square law variation of g, yields results which differ from those of Eq. (7) by only 4 meters at 300 km altitude (see Appendix B) when a suitable value of effective earth's radius^{7, 24} for latitude 45° 32' 33"

⁷ Professor A. Miele of Purdue University has suggested the name "modified geopotential altitude" for H*. He has recommended the use of H* in model atmosphere work, since it measures altitude in units of length and eliminates the use of geopotential meters which have the dimensions of energy per unit mass.

is used. This relationship is

$$H = \left(\frac{g_0}{G} \right) \frac{rZ}{r + Z} \quad (10)$$

where $r = 6,356,766$ m, the effective earth's radius at latitude $45^\circ 32' 33''$.

2.3 Relationship Between Temperature and Molecular-Scale Temperature

The molecular-scale temperature introduced by Minzner and Ripley²² is the defining atmospheric property of this model. This property is a composite of temperature and molecular weight, and is defined by the equation:

$$T_M = \left(\frac{T}{M} \right) M_0 \quad (11)$$

where

T = temperature in the absolute thermodynamic scales,

T_M = molecular-scale temperature in the absolute thermodynamic scales,

M = molecular weight (nondimensional),

M_0 = sea-level value of molecular weight .

No direct measurements of temperature have been made at altitudes above those which are reached by balloons; instead, the temperature is derived from values of the velocity of sound, or by substitution of measured pressures or densities into the barometric equation. The molecular-scale temperature can be derived in this way without specifying the molecular weight, whereas the temperature can be derived only if the molecular weight is known. Since the molecular weight is not well known at altitudes above 90 km, the molecular-scale temperature is more precisely known than temperature. Thus the introduction of molecular-scale temperature increases the validity of some of the tabulated properties while simultaneously decreasing the complexity of the mathematics relating the basic atmospheric properties. The use of molecular-scale temperature also avoids the necessity for changing the

defined atmosphere each time new values for the inadequately known molecular-weight distribution may be adopted.

The use of T_M retains consistency with the ICAO Standard Atmosphere, since over the altitude region of that Standard (as well as to considerably greater altitudes), the ratio of M_0/M is unity, and hence $T_M = T$ over the same altitude region.

2.4 Altitude Function of Molecular-Scale Temperature Determined From Pressure and Density Data

The combining of Eqs. (3), (6), and (11) leads to

$$\frac{d \ln P}{dH} = - \frac{GM_0}{R^* T_M} = - \frac{Q}{T_M} \quad (12)$$

where Q is a constant equal to $0.0341648^\circ K/m'$.

From this equation it is evident that the negative reciprocal of T_M is directly proportional to the slope of the curve, $\ln P$ vs. H . Differentiating Eq. (12) yields

$$\frac{d^2 \ln P}{dH^2} = \frac{Q}{T_M^2} \frac{dT_M}{dH} \quad (13)$$

from which one sees that the altitude gradient of molecular-scale temperature (dT_M/dH) is proportional to the rate of change of slope of the curve, $\ln P$ vs. H , as well as to T_M^2 . Equations (12) and (13) form the basis for the determination of T_M vs. H from pressure-altitude data.

Equation (13) may not be explicitly solved for either T_M or dT_M/dH , but this equation does assist in determining the approximate shape of the related T_M vs. H curve. Equation (12), on the other hand, may be solved for T_M ; but, since T_M varies greatly for even small variations in the logarithms of pressure, the values of T_M determined from the pressure data usually have a large scatter, and smoothing of either the initial pressure data or of the resulting T_M data must be used to obtain a reasonable T_M vs. H profile.

For technical reasons, pressure data have not been measured above 120 km on rocket flights, but density data are now available from both rocket instrumentation and satellite observation to much greater altitudes. Consequently, one is forced to use more complicated relations depending on density in deducing the variation of T_M with respect to H .

If one eliminates T and M from Eq. (1) through the introduction of Eq. (11) and then expresses the results in terms of natural logarithms, the derivative of this expression with respect to H yields

$$\frac{d \ln \rho}{dH} = \frac{d \ln P}{dH} - \frac{d \ln T_M}{dH} \quad (14)$$

The elimination of $d \ln P/dH$ between Eqs. (12) and (14) provides the basic relationships between T_M , ρ , and H , and thus provides the means for deducing T_M from density-altitude data. These relationships are

$$\frac{d \ln \rho}{dH} = -\frac{Q}{T_M} - \frac{d \ln T_M}{dH} = -\frac{1}{T_M} \left(Q + \frac{dT_M}{dH} \right) \quad (15)$$

and

$$\frac{d^2 \ln \rho}{dH^2} = \frac{Q}{T_M^2} \frac{dT_M}{dH} - \frac{d^2 \ln T_M}{dH^2} = \frac{1}{T_M^2} \frac{dT_M}{dH} \left(Q + \frac{dT_M}{dH} \right) - \frac{1}{T_M} \frac{d^2 T_M}{dH^2} \quad (16)$$

Neither of these equations may be solved for T_M or dT_M/dH explicitly, and numerical methods must be used to deduce the T_M vs. H profile from density data.

The general procedure begins by drawing an average density-altitude curve through the observed data points and estimating from this curve approximate values of T_M and dT_M/dH for the various altitude regions by means of Eqs. (15) and (16). Then, starting at the lowest altitude region under investigation, a range of values of dT_M/dH ,

including the previously estimated values, are selected. Each of these T_M gradients are then used to operate on the known or accepted base values of ρ and T_M to determine a segment of the ρ vs. H curve. The value of dT_M/dH yielding a density-altitude curve most closely fitting the data is adopted. The process is then repeated for successively higher altitude regions until a T_M vs. H function and a related density-altitude curve is constructed to the highest altitude for which data are available. Equation (21) given in Section 2.7 is used for these computations. The density-altitude curve developed in this manner for the 1959 ARDC Model, along with its supporting satellite and rocket density data, is shown in Fig. 2. The related T_M vs. H function is defined in the following section.

2.5 Temperature-Height Profile of the 1959 Model

In accordance with precedent^{5, 12, 29, 31} and by agreement of the Working Group on Extension to the Standard Atmosphere,⁶ the defining temperature parameter is a continuous function of altitude consisting of a consecutive series of different subfunctions, each linear with respect to altitude and with first derivatives which are discontinuous at the intersections of the linear segments. The use of such a function implied that the atmosphere is made up of a finite number of concentric layers, each layer characterized by a specific constant value of the slope of the temperature parameter with respect to geopotential. This slope will hereinafter be referred to as the gradient, L_M ; it is equal but of opposite sign to "lapse rate."

The following is the general form of the molecular-scale temperature function:

$$T_M = (T_M)_b + L_M(H - H_b) \quad (17)$$

where

H = geopotential (altitude) in m' ,
 T_M = the molecular-scale temperature in °K at altitude H ,

$L_M = dT_M/dH$ = the gradient of the molecular-scale temperature in $^{\circ}\text{K m}^{-1}$ (constant for a particular layer) ,

H_b = geopotential in m' at the base of a particular layer characterized by a specific value of L_M ,

$(T_M)_b$ = the value of T_M at altitude H_b .

The molecular-scale temperature functions of both the 1959 and the 1956 models are shown in Fig. 1, page iii. In the following table, the molecular-scale temperature at the extremities of each atmospheric layer and the gradient within each layer are given.

Temperature-Height Profile of the 1959 ARDC Model Atmosphere

H_b (m')	$(T_M)_b$ ($^{\circ}\text{K}$)	L_M ($^{\circ}\text{K/m'}$)
-5,000	320.66	-0.0065
0	288.16	-0.0065
11,000	216.66	0.0000
25,000	216.66	0.0030
47,000	282.66	0.0000
53,000	282.66	-0.0045
79,000	165.66	0.0000
90,000	105.66	0.0040
105,000	225.66	0.0200
160,000	1325.66	0.0100
170,000	1425.66	0.0050
200,000	1575.66	0.0035
700,000	3325.66	

2.6 Pressure

2.6.1 Standard Pressure at Sea Level

The standard pressure at sea level, P_0 , is defined as 101,325 newtons m^{-2} or 1013.25 millibars.^{10,11,12} This pressure corresponds to the pressure exerted by a column of mercury 760 mm high having a density of 13,595.1 $kg\ m^{-3}$ (13.5951 $gm\ cm^{-3}$) and subject to a gravitational acceleration of 9.80665 $m\ sec^{-2}$.

2.6.2 Pressure-Altitude Formulas

The basic pressure-altitude relationship was given by Eq. (3) in terms of five variables. The introduction of geopotential through Eq. (6) and the introduction of molecular-scale temperature through Eq. (11) yields:

$$d \ln P = \frac{-GM_0}{R^*} \frac{dH}{T_M} \quad (18)$$

in terms of only three variables: P , T_M , and H .

Replacing T_M in Eq. (18) by a function of H (in terms of a constant gradient L_M) from Eq. (17) leads to expressions in terms of only two variables which, in turn, permit integrations resulting in the following equations for pressure explicitly in terms of geopotential:

$$P = P_b \left[\frac{(T_M)_b}{(T_M)_b + L_M (H - H_b)} \right]^{GM_0/R^* L_M} \quad \text{for } L_M \neq 0 \quad (19a)$$

and

$$P = P_b \exp \left[\frac{-GM_0 (H - H_b)}{R^* (T_M)_b} \right] \quad \text{for } L_M = 0 \quad (19b)$$

where P = pressure in the same units used for P_b , and where the subscript b refers to the value of the quantity at the base of the constant-gradient layer.

2.7 Density

The formula for atmospheric density at any specific altitude is obtained by introducing Eq. (11) into Eq. (1) which yields:

$$\rho = \frac{M_o P}{R^* T_M} = 3.4838395 \times 10^{-3} \frac{P}{T_M} \quad (20)$$

where

ρ = density in kg m^{-3} ,

P = pressure in newtons m^{-2} .

Rewriting Eq. (20) for ρ_b and combining the expression for both ρ and ρ_b with Eq. (19a) yields:

$$\rho = \rho_b \left[\frac{(T_M)_b}{(T_M)_b + L_M (H - H_b)} \right]^{1 + (GM_o / R^* L_M)} \quad \text{for } L_M \neq 0. \quad (21a)$$

When expressions for ρ and ρ_b from Eq. (20) are combined with Eq. (19b),

$$\rho = \rho_b \exp \left[\frac{-GM_o (H - H_b)}{R^* (T_M)_b} \right] \quad \text{for } L_M = 0 \quad (21b)$$

in which the exponent is identical to that of Eq. (19b).

2.8 Speed of Sound

The speed of sound propagation is defined in this model by the classical equation,

$$C_s = \left[\frac{\gamma P}{\rho} \right]^{1/2} = \left[\frac{\gamma R^*}{M_o} T_M \right]^{1/2} = 20.046333 (T_M)^{1/2} \quad (22)$$

where

C_s = speed of sound in m sec^{-1} ,

γ = the ratio of specific heats of air defined to be 1.4 (exact) (for altitudes up to 90 km'),

P = pressure in newtons m^{-2} ,

ρ = density in kg m^{-3} .

For reasons which are discussed in a later section, the concept of the velocity of sound in the atmosphere becomes essentially meaningless at very great altitudes except perhaps for very special cases. To point out this limitation, the values of C_s are not tabulated above 90 km'.

2.9 Mean Air Particle Speed (Arithmetic Average)

The mean particle speed \bar{V} in this model is defined as the arithmetic average of the maxwellian distribution of speeds of all air particles within a given elemental volume, assuming that all air molecules have the average mass associated with the mean molecular weight.¹⁸ The value of \bar{V} thus determined for a given temperature is not exactly equal to the weighted mean of the separate values of mean particle speed for each pure constituent of the atmosphere. However, this value does not depart greatly from such a weighted mean. The quantity \bar{V} retains its significance provided (a) that the volume considered contains enough particles for their velocities to follow a maxwellian distribution, and (b) that variations of ρ and T/M in any direction are negligible within the volume element.

The formula used for the computations is

$$\bar{V} = \left[\frac{8R^*}{\pi} \frac{T}{M} \right]^{1/2} = \left[\frac{8R^*}{\pi M_0} T_M \right]^{1/2} = 27.035910 (T_M)^{1/2} \quad (23)$$

where \bar{V} = air particle speed (arithmetic average) in m sec⁻¹.

2.10 Geopotential Scale Height and Scale Height

Rearranging Eq. (18), an expression having the dimensions of "standard geopotential" meters is obtained,²⁵

$$H'_s = \frac{-1}{\frac{d \ln P}{dH}} = \frac{R^* T_M}{GM_0} = 29.269897 T_M \quad (24)$$

where H'_s = geopotential scale height in m'.

This property is seen to be equal to the negative reciprocal of the slope of the curve, $\ln P$ vs. H , and to vary only with T_M . It is apparent that dH'_s/dH is directly proportional to L_M and that H'_s is, therefore, a linear function of H . Values of this property are not tabulated.

Similarly, rearranging Eq. (3) and introducing Eq. (11) yields an expression having the dimensions of geometric meters; this expression

is given the name of "scale height."²⁷

$$H_s = \frac{-1}{\frac{d \ln P}{dZ}} = \frac{R^* T}{gM} = \frac{R^* T_M}{gM_0} = 287.03963 \frac{T_M}{g} \quad (25)$$

where H_s = scale height in m.

Scale height is seen to be equal to the negative reciprocal of the slope of the curve, $\ln P$ vs. Z , and to vary with T_M as well as with g .

2.11 Specific Weight

The specific weight of a body of uniform density at any point in space is the weight per unit volume of the body at that point. The computational equation is thus the mass per unit volume times g , or the density times g , thus

$$\omega = \rho g = \frac{gM_0 P}{R^* T_M} = 3.4838395 \times 10^{-3} \frac{gP}{T_M} \quad (26)$$

where ω = specific weight in $\text{kg m}^{-2} \text{ sec}^{-2}$.

2.12 Molecular Weight, The Sea-Level Composition of the Atmosphere, and the Altitude Variation of Molecular Weight

In this model, molecular weight is considered dimensionless. Values of molecular weight are given in terms of the chemical mass scale in which the naturally occurring mixture of oxygen isotopes has, by definition, a value of 16.

In accordance with the ICAO Standard,^{11, 12} the atmosphere defined by this model is assumed to be dry. The sea-level molecular weight M_0 , as determined by the sea-level atmospheric composition indicated in the following table, is 28.966 (dimensionless). In this model, the composition is assumed constant between 0 and 90 standard geopotential kilometers altitude; consequently, the sea-level value of molecular weight applies in this altitude interval.

To proceed from the molecular-scale temperature curve to a curve of kinetic temperature, it is necessary to know the mean molecular weight as a function of altitude. A mean molecular weight curve may be based on a theoretical description of the atmosphere or on the

Sea-Level Atmospheric Composition for a Dry Atmosphere⁺

Constituent Gas	Mol. Fraction Percent	Molecular Weight (0 = 16,000)
Nitrogen (N ₂)	78.09	28.016
Oxygen (O ₂)	20.95	32.0000
Argon (A)	0.93	39.944
Carbon dioxide (CO ₂)	0.03	44.010
Neon (Ne)	1.8×10^{-3}	20.183
Helium (He)	5.24×10^{-4}	4.003
Krypton (Kr)	1.0×10^{-4}	83.7
Hydrogen (H ₂)	5.0×10^{-5}	2.0160
Xenon (Xe)	8.0×10^{-6}	131.3
Ozone (O ₃)	1.0×10^{-6}	48.0000
Radon (Rn)	6.0×10^{-18}	222.0

⁺These values are taken as standard and do not necessarily indicate the exact condition of the atmosphere. Ozone and Radon particularly are known to vary at sea level and above, but these variations would not appreciably affect the value of M_0 .

results of experimental probes. Unfortunately, at the present time neither basis is adequate to an altitude of 700 km', although it is hoped that satellite mass spectrometric data will soon remedy this deficiency.

The variation of mean molecular weight with altitude above 90 km' used in the 1956 Model Atmosphere was based on theoretical calculations which indicated that oxygen dissociation commences sharply at 90 km and is nearly complete by 175 km', where diffusive equilibrium applies. Recent rocket data reported by Townsend³⁰ suggest that the molecular weights of the 1956 ARDC Model are in error, particularly between 90 and 200 km'. The average molecular weights deduced from rocket flights

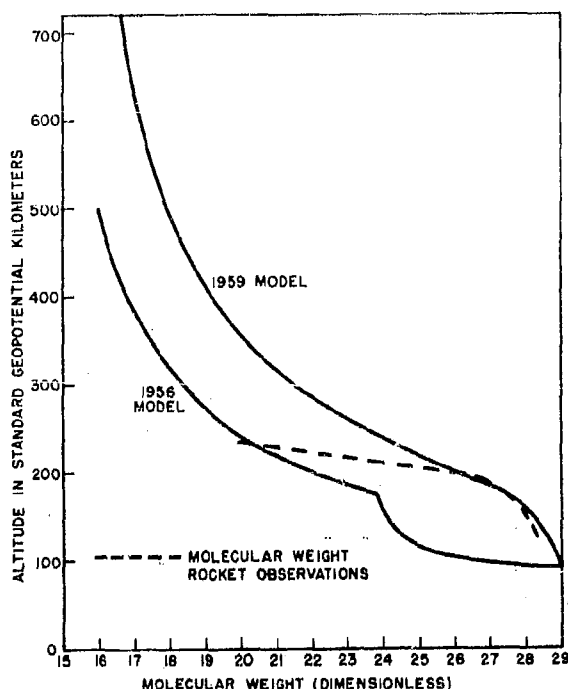


FIG. 3. Variation of mean molecular weight with altitude.

of a Bennett mass spectrometer are compared with the 1956 model values in Fig. 3. However, molecular weights determined from this curve, when combined with the values of molecular-scale temperature at corresponding altitudes, yielded a kinetic temperature curve with negative gradients ($dT/dH < 0$) in the region just above 200 km'. Townsend's values of M are based on measurements which are probably much less reliable than the various density data. Furthermore, the molecular weight data above 180 km' represent the results of only

a single rocket flight while at lower altitudes there were three flights. Accepting the molecular weight data below 200 km' and keeping the restriction of $dT/dH \geq 0$ then leads to the molecular weight curve for the 1959 model shown in the figure. The equation of this curve is:

$$M = \left\{ \begin{array}{ll} 28.966 & , -5 \text{ km}' \leq H \leq 90 \text{ km}' \\ 22 - 5.044, 835.74 \arctan \left[\frac{H - 220}{25} \right] & , 90 \text{ km}' \leq H \leq 180 \text{ km}' \\ 27.106 - 7.935, 697.10 \arctan \left[\frac{H - 180}{140} \right] & , 180 \text{ km}' \leq H \end{array} \right\} \quad (27)$$

In this equation the constant 28.966 is the defined sea-level value of M . The constants multiplying the arctangent functions were determined

after the other constants had been selected and were used to adjust the different segments at junction and end points.

The mean molecular weight curve for the 1959 model results from an attempt to make use of the apparently best available experimental data. It leads to such questions as: Does oxygen dissociation commence at a higher altitude than 90 km, or does it start at 90 km but increase with altitude at a much slower rate than was previously believed? The apparent alternative is to reject the mass spectrometer measurements between 100 and 200 km. However, mean molecular weight, like most properties of the upper atmosphere, is a function of both time and location. Townsend's rocket measurements were made at Fort Churchill, which is near the magnetic north pole. Measurements of temperature made at the same time showed rather high gradients in the upper atmosphere, evidently due to the influence of higher energy particles following the lines of the earth's magnetic field. This could result in more efficient mixing of the air components and, in particular, a smaller ratio of atomic to molecular oxygen at altitudes of 100 to 200 km than at other parts of the earth. Thus, at lower latitudes, a curve such as that given in the 1956 model (see Fig. 3) may more accurately represent the mean molecular weight as a function of altitude.

Since sufficient data are not available at present to adequately discuss variations in atmospheric properties with latitude, it is possible it would be best to consider that the mean molecular weight lies between the values given for the 1956 and 1959 models.

The mean molecular weight for the 1959 model is about 10 to 20 percent greater than that of the 1956 model. Using the smaller molecular weights would decrease the kinetic temperature and mean free path by the same percentage. Similarly, the number density and collision frequency would be increased by 10 to 20 percent. However, it should be noted that the molecular-scale temperature is not uniquely determined by the density data. The result is that at altitudes above 200 km the effect of the uncertainty in molecular-scale temperature can exceed the effect of 10 to 20 percent change in molecular weight.

2.13 Mole Volume

Mole volume of a gas is defined as the specific volume of the gas which is the reciprocal of the density, when that density is expressed in terms of the mole mass unit: ⁷

$$v = \frac{1}{\rho'} = \frac{M}{\rho} = \left(\frac{R^*}{M_0} \right) \frac{M T_M}{P} = 287.03963 \frac{M T_M}{P} \quad (28)$$

where

$$v = \text{mole volume in } m^3 (\text{kg-mol})^{-1},$$

$$\rho' = \text{density in kg-mol } m^{-3}.$$

This property is not tabulated but is plotted in Fig. 5c, page 28 (Fig. 9c, page 32, in English units).

2.14 Number Density

The number density of a gas is defined as the number of molecules per unit volume and is equal to Avogadro's number, the number of molecules per mole mass, divided by the mole volume. The value for air at any particular altitude depends among other things upon the degree of dissociation, which is inferred through the value of mean molecular

⁷ The mole is defined as a mass of substance equal to M times the common mass unit of a particular system of units, where M is the dimensionless molecular weight of the substance. To distinguish between the various kinds of mole masses, when several systems of units are involved, prefixes indicating the related common mass unit are used. Thus, for this document, one requires the following units and conversions:

$$1 \text{ kg-mol} = M \text{ kg}$$

$$1 \text{ lb-mol} = M \text{ lb}$$

$$1 \text{ slug-mol} = M \text{ slugs.}$$

Applying the first of these mass conversions to density yields:

$$\left[\rho \text{ kg } m^{-3} = \frac{\rho}{M} \text{ kg-mol } m^{-3} = \rho' \text{ kg-mol } m^{-3} \right].$$

Similar relations hold for the other systems of units.

weight. Thus,

$$n = \frac{N}{V} = \frac{NM_0 P}{R^* M T_M} = 2.0985952 \times 10^{24} \frac{P}{M T_M} \quad (29)$$

where

n = number density in m^{-3} ,

N = Avogadro's number, $6.02380 \times 10^{26} \text{ (kg-mol)}^{-1}$.

2.15 Mean Free Path

Mean free path is the mean value of the distances traveled by each of the molecules of a given volume between successive collisions with other molecules of that volume, provided that the dimensions of the volume are large compared with the mean free path and provided that the density does not vary appreciably within that volume. For altitudes above 120 km, the tabulated values of L must be used with caution since the conditions implied by Eq. (30) become increasingly invalid at these altitudes. It is believed that the tabulated values, however, approximate the actual value for molecules moving horizontally even for much greater altitudes.

The expression for mean free path adopted for this model follows from kinetic theory assuming a homogeneous maxwellian gas and elastic collisions between spherical molecules of uniform mass.¹⁹ As in the case of mean particle speed, the values of mean free path calculated for this model are those applicable to an atmosphere consisting of hypothetical average air molecules, rather than to an atmosphere consisting of a mixture of gases. The expression used and its equivalent in terms of Eq. (29) are

$$L = \frac{1}{\sqrt{2} \pi \sigma^2 n} = \frac{R^* M T_M}{\sqrt{2} \pi \sigma^2 N M_0 P} = 8.0504605 \times 10^{-7} \frac{M T_M}{P} \quad (30)$$

where

L = mean free path in meters,

σ = average effective collision diameter of air molecules assumed to be $3.65 \times 10^{-10} \text{ m.}$ ✓

✓ The value of σ adopted for this model was rather arbitrarily chosen to fall within the range of values listed by Hirschfelder.⁹

2.16 Collision Frequency

The mean collision frequency of the molecules of a given volume of air is the average velocity of the molecules in that volume divided by the mean free path of the molecules within the volume, or

$$\nu = \frac{\bar{V}}{L} = 4 \sigma^2 N \left[\frac{\pi M_O}{R^*} \right]^{1/2} \frac{P}{M(T_M)^{1/2}} = 3.3583060 \times 10^7 \frac{P}{M(T_M)^{1/2}} \quad (31)$$

where

ν = the collision frequency in sec^{-1} ,

\bar{V} = the average particle velocity in m sec^{-1} .

The limitations and approximations applying to \bar{V} and L obviously apply also to collision frequency.

2.17 Viscosity⁷

Viscosity of a fluid or gas is a kind of internal friction which resists relative motion between adjacent regions of the fluid. This internal friction is usually determined by a viscometer from the drag force experienced by one of two parallel plates separated by the fluid, when that plate is moved with known velocity and constant spacing relative to the fixed plate so as to create, at any instant, a constant normal velocity gradient in the fluid between the plates. The measured drag force per unit of effective area of the plate is proportional to the normal velocity gradient within the fluid. This proportionality factor is defined as the coefficient of viscosity, μ .

The value of μ has been found to vary with the temperature of the gas but to be independent of the gas pressure within a limited range. Kinetic theory has been used in attempts to develop theoretical expressions for μ ,¹⁶ and Chapman⁴ has derived cumbersome formulas for accurately representing the dependence of μ on the temperature at least over the range of 100° to 1500° K. Because of the complexity of these equations, however, the values of μ in this model are computed from the well-known empirical Sutherland's equation with coefficients as used by the National Bureau of Standards.⁸ This equation is

⁷ See Section 4 for limitation of the equation used.

$$\mu = \frac{\beta T^{3/2}}{T + S} \quad (32)$$

where

μ = coefficient of viscosity in $\text{kg sec}^{-1} \text{m}^{-1}$ ($1 \text{ kg sec}^{-1} \text{m}^{-1} = 10 \text{ poise}$),

$\beta = 1.458 \times 10^{-6} \text{ kg sec}^{-1} \text{m}^{-1} (\text{°K})^{-1/2}$,

$S = 110.4 \text{°K}$,

T = temperature in °K .

Values of μ tabulated in this model from -5,000 m' to 90,000 m' are applicable over this range of altitudes when the body dimensions are sufficiently large, but each application should be examined with caution, especially for altitudes above 40 km.

2.18 Kinematic Viscosity[✓]

Kinematic viscosity of air is defined as the ratio of the coefficient of viscosity of air to the density of air.

$$\eta = \frac{\mu}{\rho} \quad (33)$$

where

η = kinematic viscosity in $\text{m}^2 \text{sec}^{-1}$,

μ = coefficient of viscosity in $\text{kg sec}^{-1} \text{m}^{-1}$,

ρ = atmospheric density in kg m^{-3} .

2.19 Thermal Conductivity^{✓✓}

Kinetic theory determinations of thermal conductivity of some monatomic gases agree well with observations.¹⁷ For these gases, thermal conductivity is directly proportional to the coefficient of viscosity. Modification of the simple theory has accounted in part for

✓ The same precautions advised in the use of the tabulated values of μ above 40 km are, of course, also applicable to the tabulated values of η .

✓✓ See Section 4 for limitations of the equation.

differences introduced by polyatomic molecules, but no valid theoretical equations exist for mixtures of gases. The following empirical equation has been adopted in this model for computing the coefficient of thermal conductivity for dry air.⁸

$$k = \frac{6.325 \times 10^{-7} T^{3/2}}{T + 245.4 \times 10^{-12}/T} \quad (34)$$

where

T = temperature in $^{\circ}\text{K}$,

k = coefficient of thermal conductivity in $\text{kg-cal m}^{-1}\text{sec}^{-1}(\text{^{\circ}K})^{-1}$.

2.20 Relationship Between Various Properties

An analysis of the equations of the various atmospheric properties presented reveals several very simple relationships. It is seen that

$$\begin{aligned} \frac{T_M}{T_{M_0}} &= \frac{H'_s}{H'_{s_0}} = \left[\frac{C_s}{C_{s_0}} \right]^2 = \left[\frac{\bar{V}}{\bar{V}_0} \right]^2 = \frac{P}{P_0} \cdot \frac{\rho_0}{\rho} = \frac{H_s}{H_{s_0}} \cdot \frac{g}{g_0} \\ &= \frac{\omega_0}{\omega} \cdot \frac{P}{P_0} \cdot \frac{g}{g_0} = \frac{\mu}{\mu_0} \cdot \frac{\eta_0}{\eta} \cdot \frac{P}{P_0} \end{aligned} \quad (35)$$

Also

$$\frac{v}{v_0} = \frac{n_0}{n} = \frac{L}{L_0} = \frac{v_0}{v} \cdot \frac{\bar{V}}{\bar{V}_0} = \frac{T}{T_0} \cdot \frac{P_0}{P} \quad (36)$$

Each of the segments of Eq. (36), when multiplied by PM_0/P_0M becomes equal to each of the segments of Eq. (35). Only the coefficient of thermal conductivity derived from an empirical relationship could not be included in these simple relationships. The coefficient of viscosity, also derived from an empirical equation, is essentially in the same situation; but by virtue of the definition of kinematic viscosity, the quotient μ/η is equal to density and hence in the ratio both find a place in the above equation.

3. TERMINATION OF CERTAIN PROPERTIES AT 90 STANDARD GEOPOTENTIAL KILOMETERS

3.1 Viscosity, Kinematic Viscosity, and Thermal Conductivity

Tabulations of the coefficient of viscosity, kinematic viscosity, and thermal conductivity are terminated at 90 km' where the composition of the atmosphere is assumed to change. One of the reasons for this termination is that these properties are computed from empirical equations which assume sea-level composition of air and which do not account for changes in molecular-weight of the air. Another reason for this termination is that the independence of these properties from variations in pressure or density implied by the empirical equations does not continue to be applicable at very low pressures except, perhaps, under special conditions involving extremely large bodies or volumes.

Measurements with laboratory-size viscometers show that μ is independent of pressure or density only in the pressure range from approximately 2.0 down to 0.1 atmospheres. It is for this pressure region that Sutherland's empirical formula is known to apply. This pressure independence appears to cease at low pressures when the mean free path of molecules becomes greater than some small fraction of the plate separation of a well-designed viscometer. This relationship suggests that for viscometers q times larger than existing models, the pressure or density independence of μ might be extended to approximately q times smaller values of pressure. Assuming that viscometer-measured values of μ apply to bodies comparable in size to the viscometer, such an extension would be applicable to present-day practical-size bodies only to altitudes below 90 km' (if such extension were warranted at all).

Thermal conductivity ceases to be pressure independent at low pressures for which the mean free path becomes comparable to the dimensions of the volume under consideration or comparable to the distance in which the temperature gradient varies appreciably. However, these latter limitations do not usually apply until pressures lower than those at 90 km' are reached.

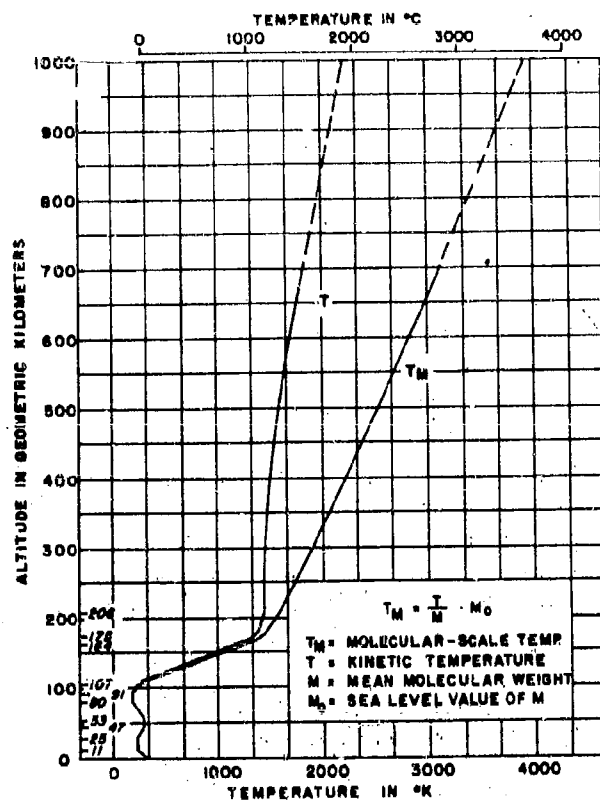
3.2 Speed of Sound

The concept of the speed of sound is related to the attenuation of sound transmission in that as the intensity approaches zero the concept of speed transmission becomes meaningless. The rate of absorption or attenuation of sound energy per unit length in air is related to frequency of the sound and the air pressure so that the attenuation increases with increasing frequency and also increases with decreasing pressure. Thus, while the sound-transmission efficiency over a given distance approaches zero for very high frequencies at sea-level pressures, it also approaches zero even for very low frequencies at the low pressures of the upper atmosphere, thereby suggesting an upper limit for tabulating sound velocity. Furthermore, while the direct dependence of sound velocity on the variation of molecular weight above 90 km' would be taken care of by the use of molecular-scale temperatures, the variation of γ above 90 km' is not accounted for by the use of T_M . The value of γ increases slowly above 90 km' as the percentage dissociation of O_2 and N_2 increases, and without separately defining this variation of γ the tabulation of the speed of sound must be terminated at 90 km'.

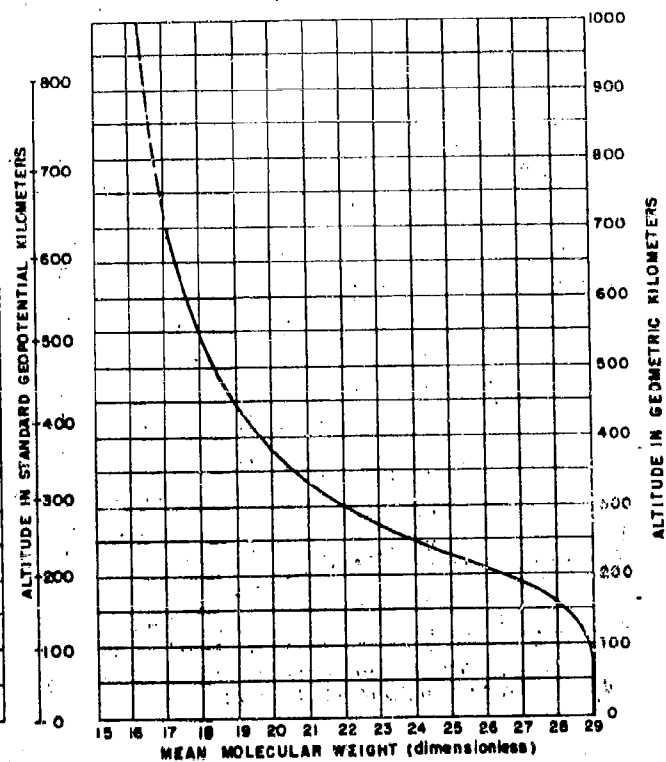
4. COMPUTATIONS

The tables of this model have been machine computed, using the formulas given in the preceding text. The properties have been calculated to eight significant figures, although they appear printed out to fewer figures dependent on altitude. The defined, independent physical constants are assumed exact. A one- or two-digit number (preceded by a plus or minus sign) following the initial entry of each block indicates the power of 10 by which that entry and each succeeding entry of that block should be multiplied. A change of power occurring within a block is indicated by a similar notation.

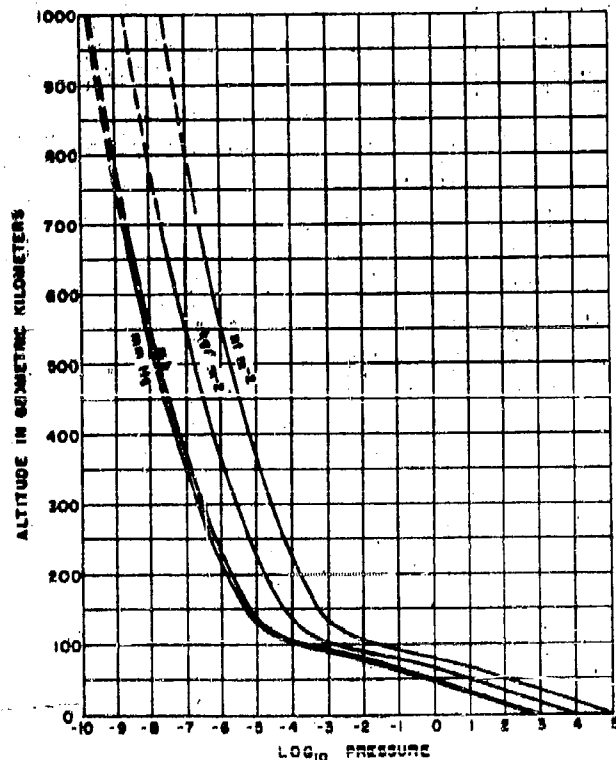
The results of the computations are given in Table 1 for metric units and in Table 2 for English units. In addition Figs. 4 through 7 provide plots of the various atmospheric properties in metric units and Figs. 8 through 11 the corresponding results in English units.



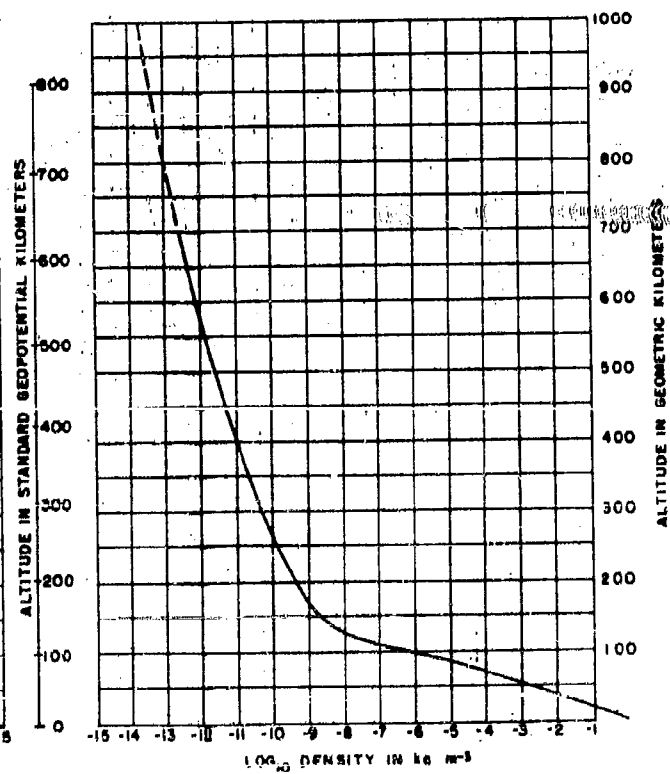
A. KINETIC TEMPERATURE AND MOLECULAR-SCALE TEMPERATURE VS. ALTITUDE



B. MEAN MOLECULAR WEIGHT VS. ALTITUDE



C. PRESSURE VS. ALTITUDE



D. MASS DENSITY VS. ALTITUDE

FIGURE 4

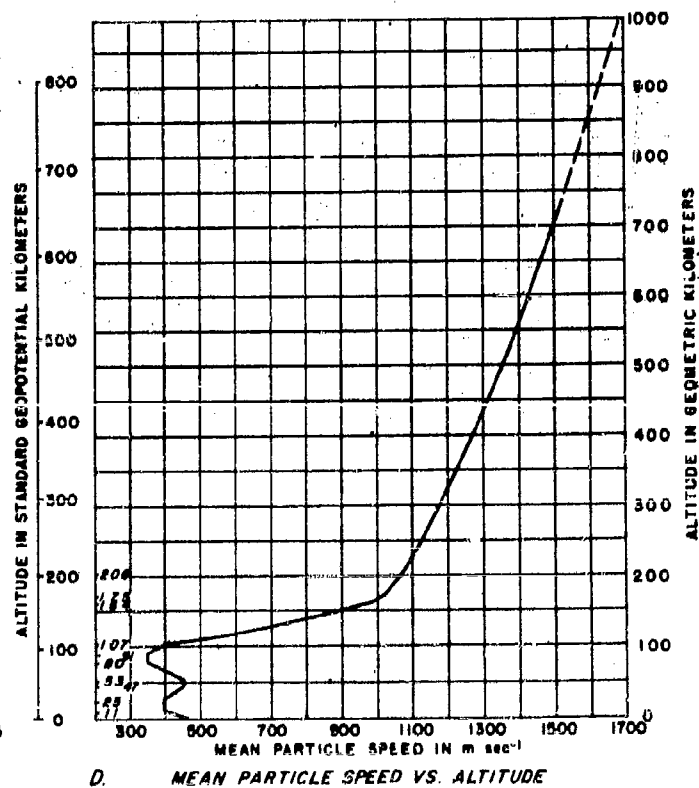
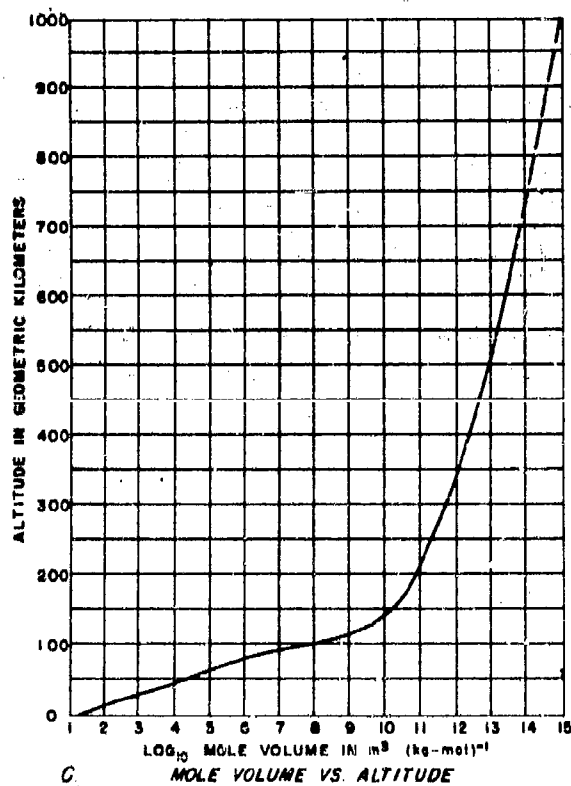
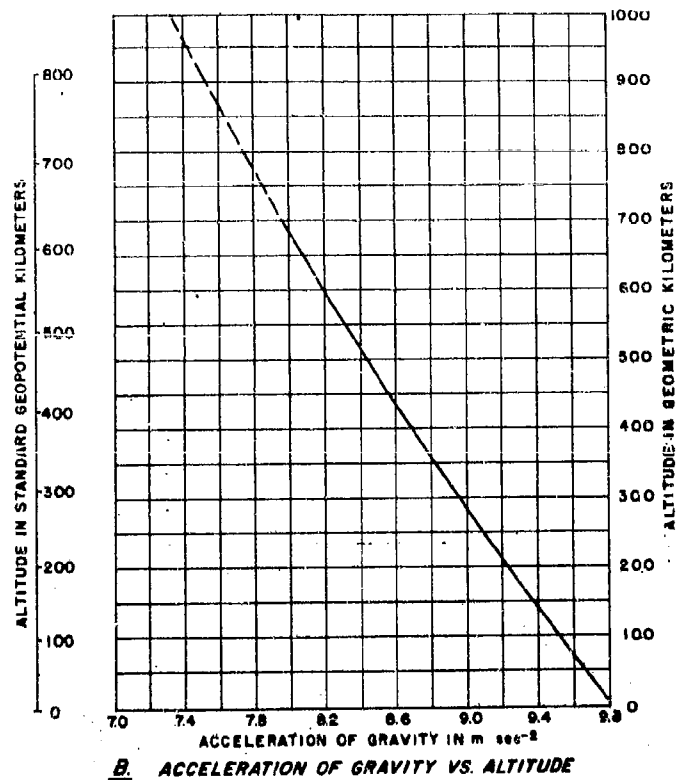
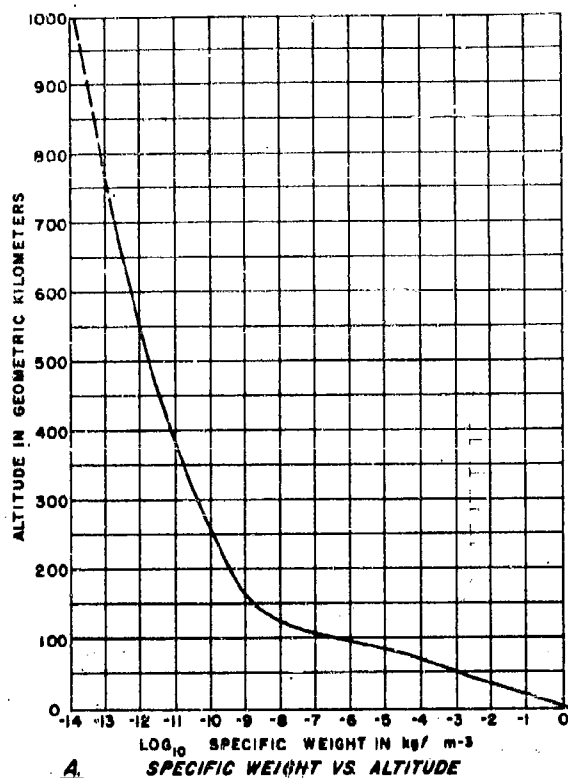


FIGURE 5

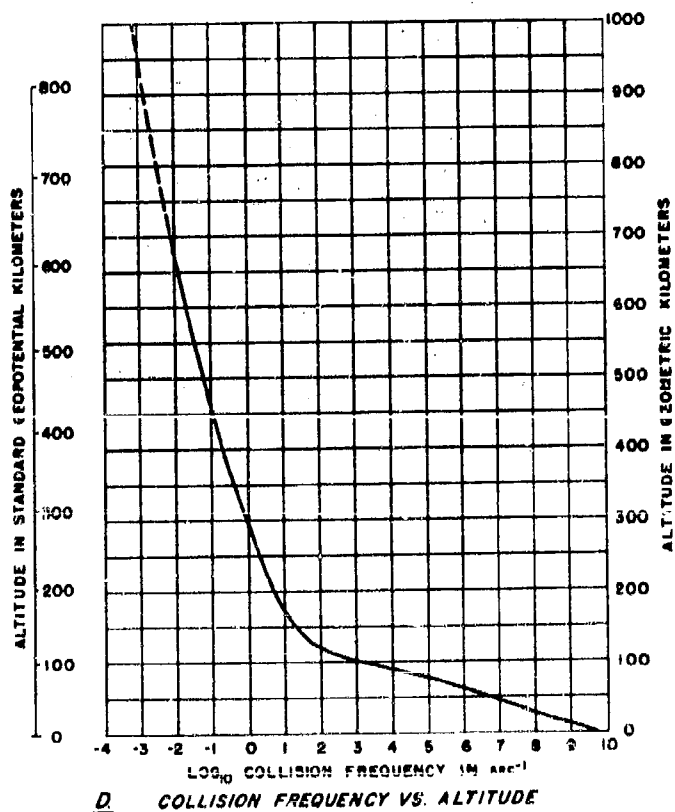
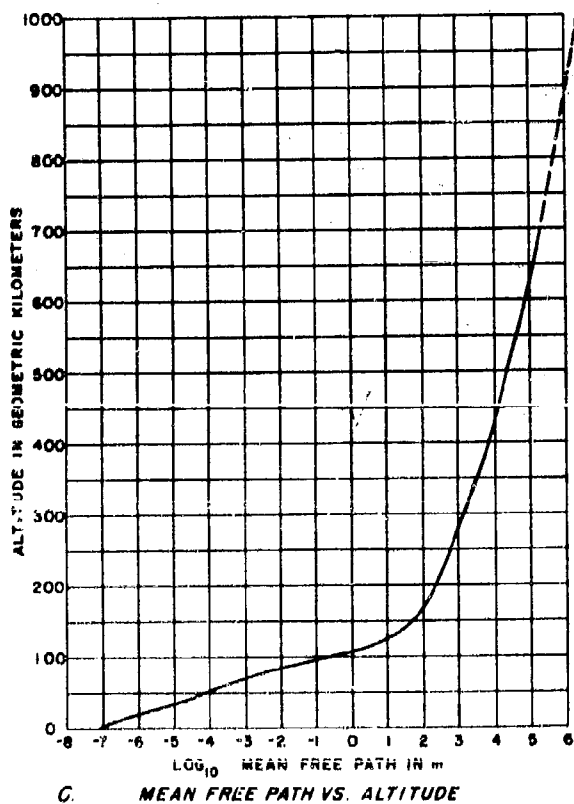
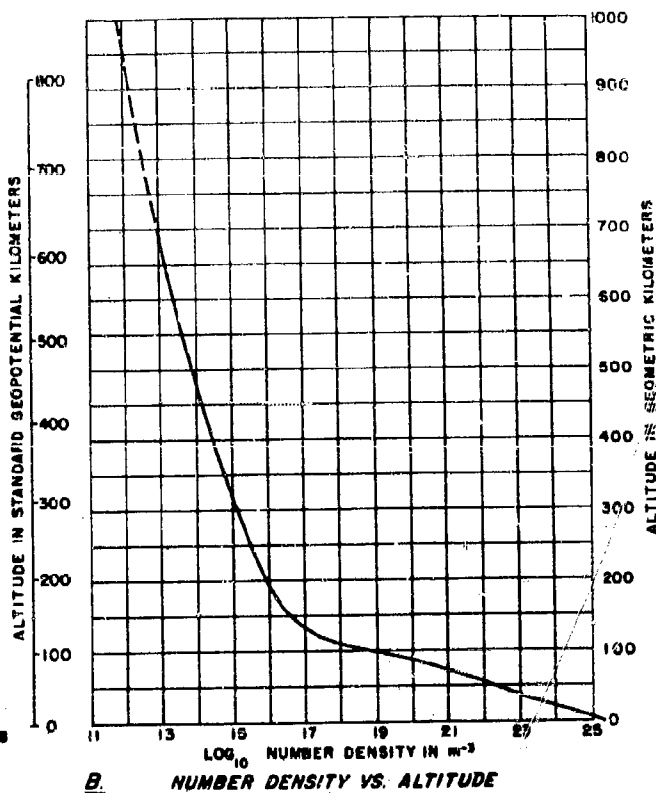
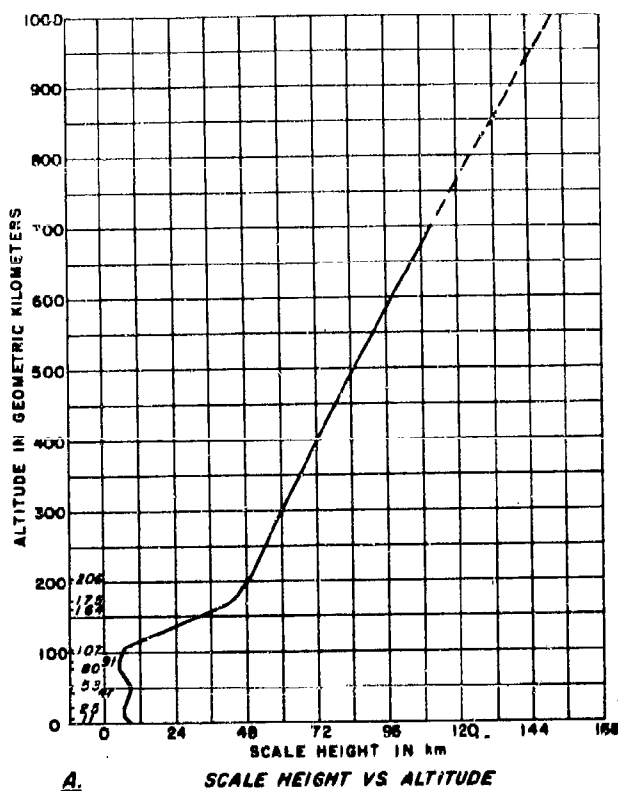
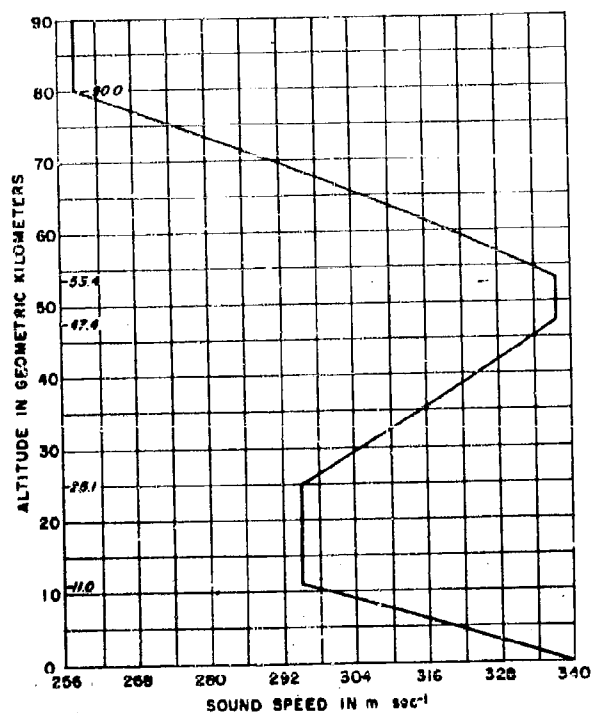
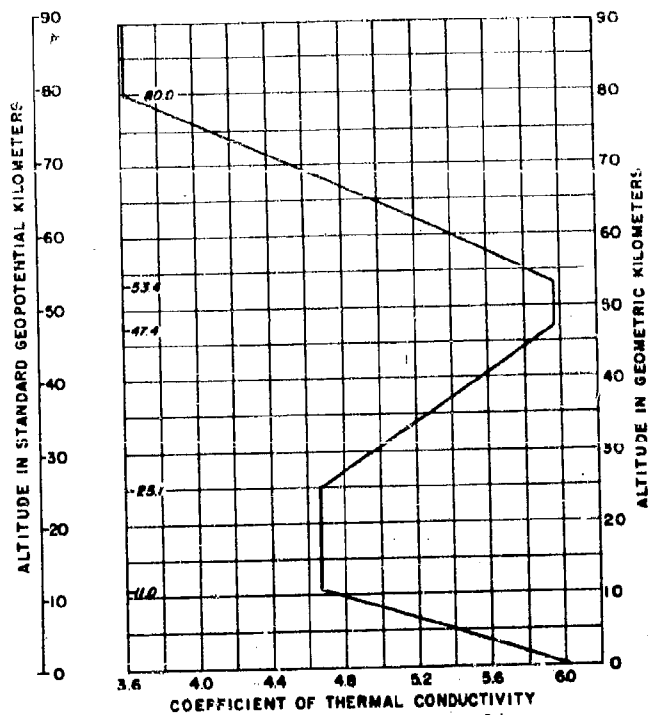


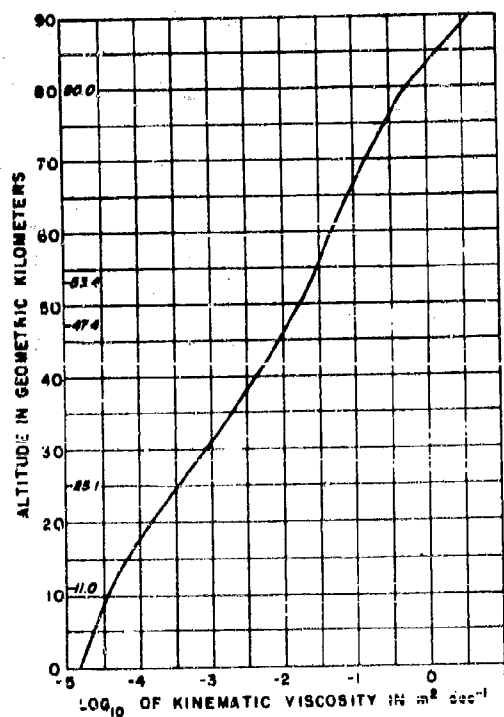
FIGURE 6



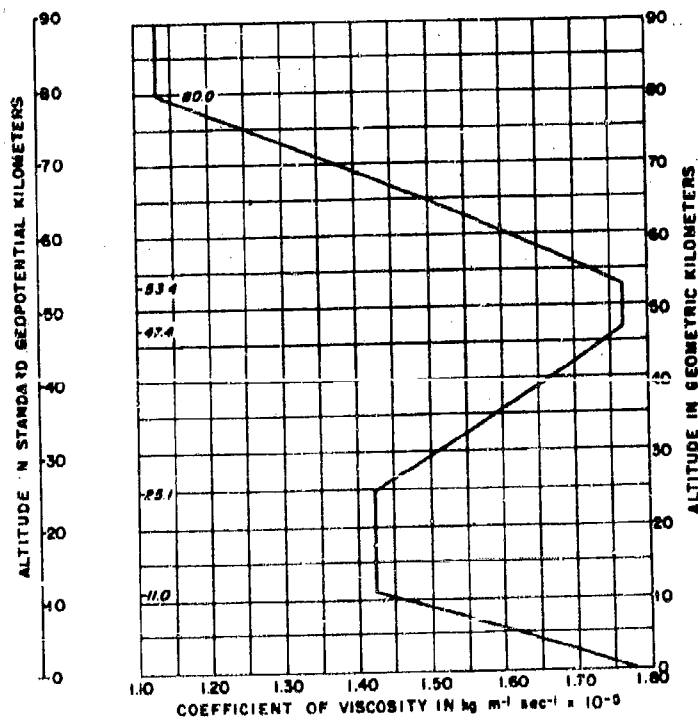
A. SPEED OF SOUND VS. ALTITUDE



B. COEFFICIENT OF THERMAL CONDUCTIVITY VS. ALTITUDE



C. KINEMATIC VISCOSITY VS. ALTITUDE



D. COEFFICIENT OF VISCOSITY VS. ALTITUDE

FIGURE 7

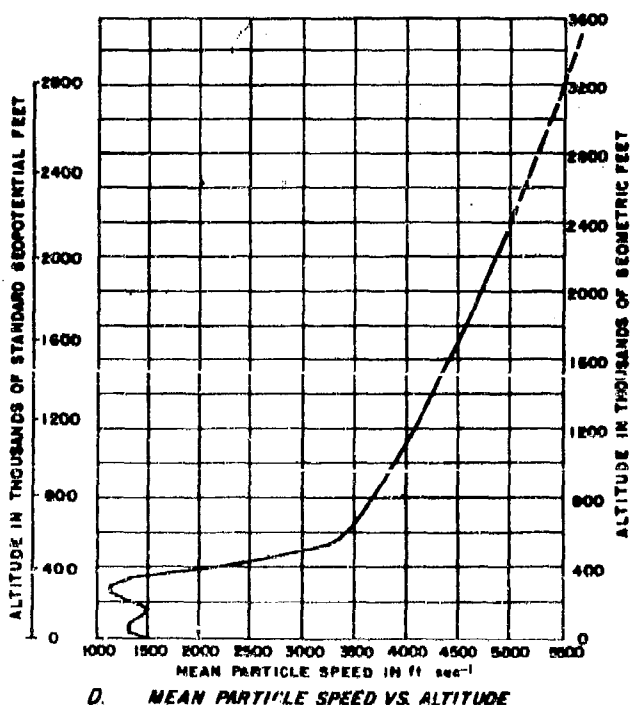
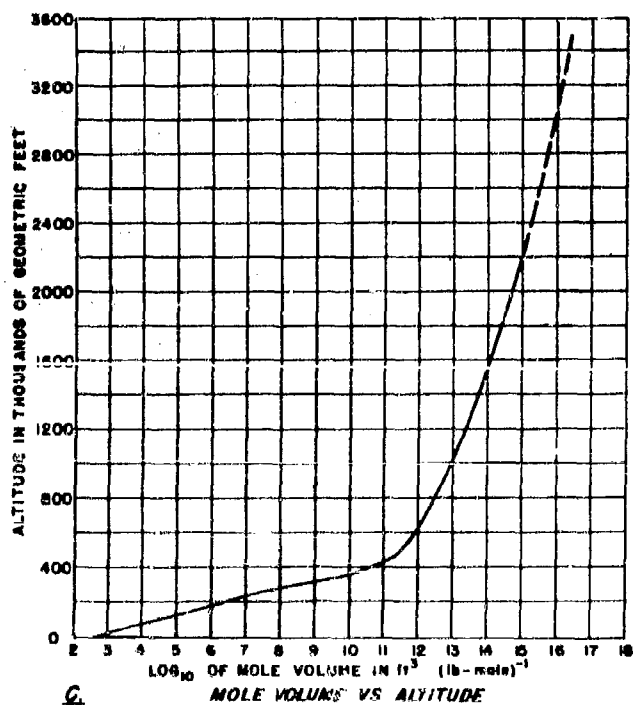
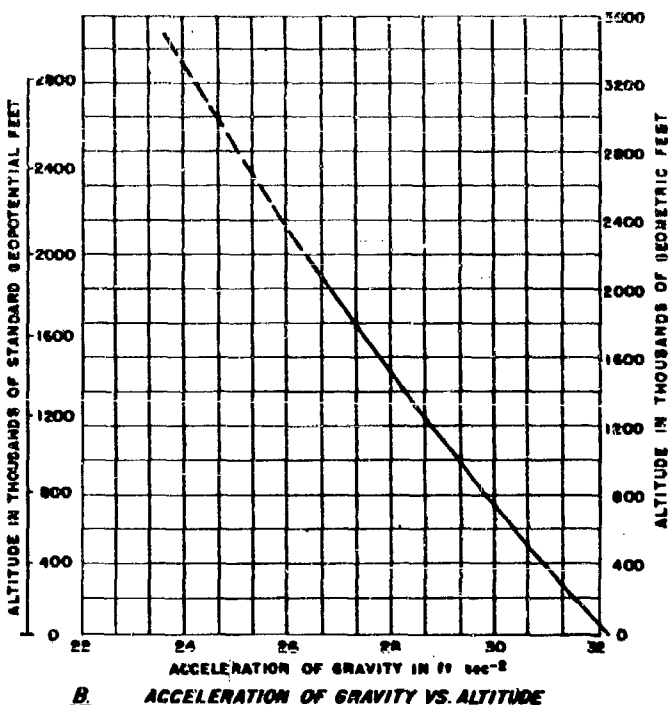
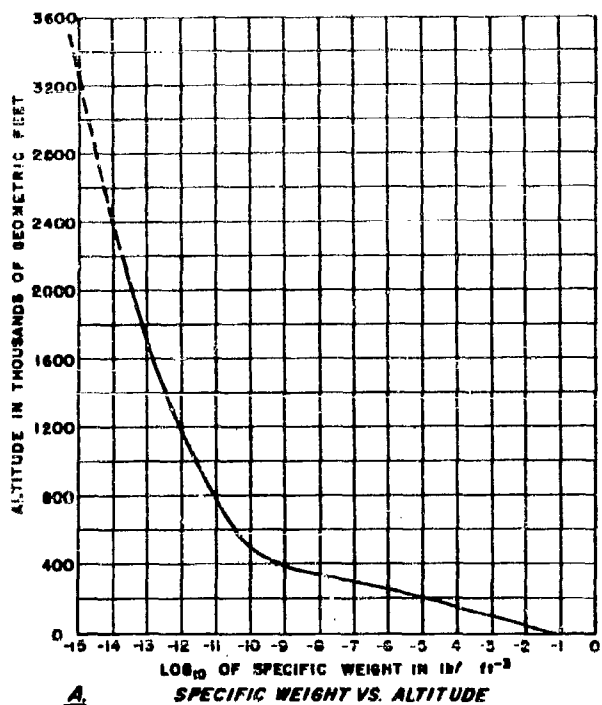


FIGURE 9

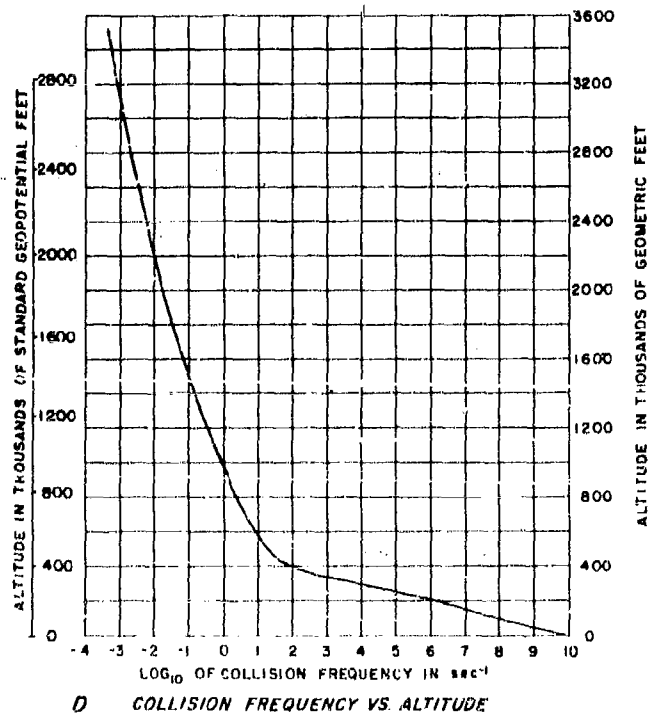
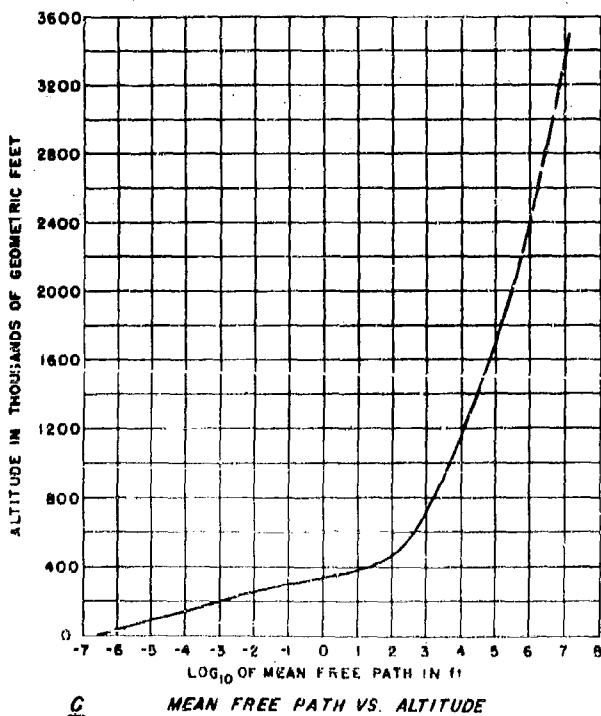
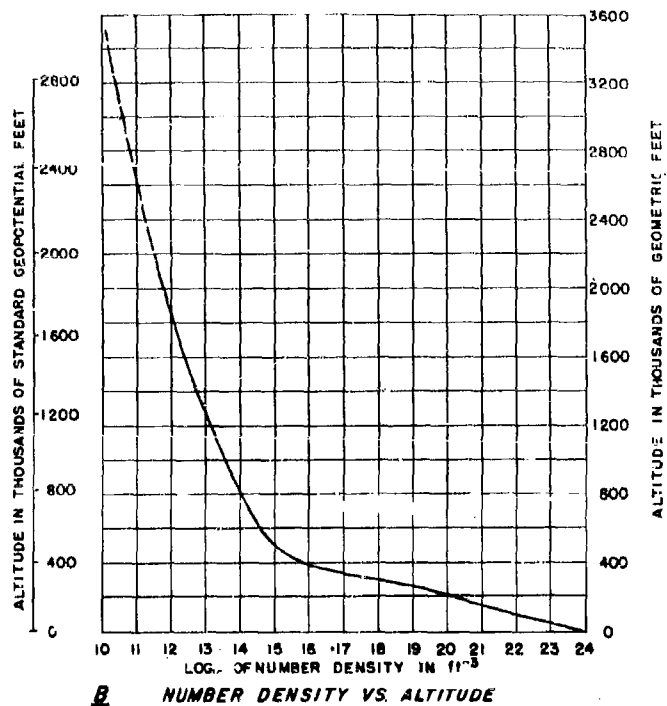
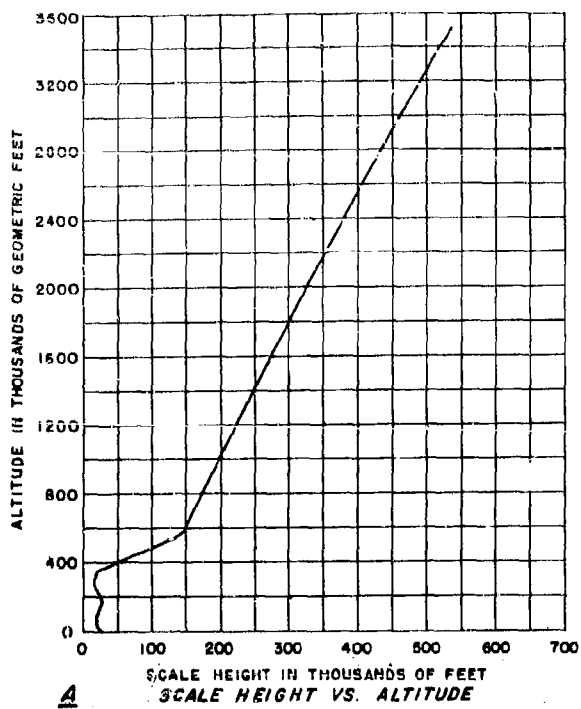


FIGURE 10

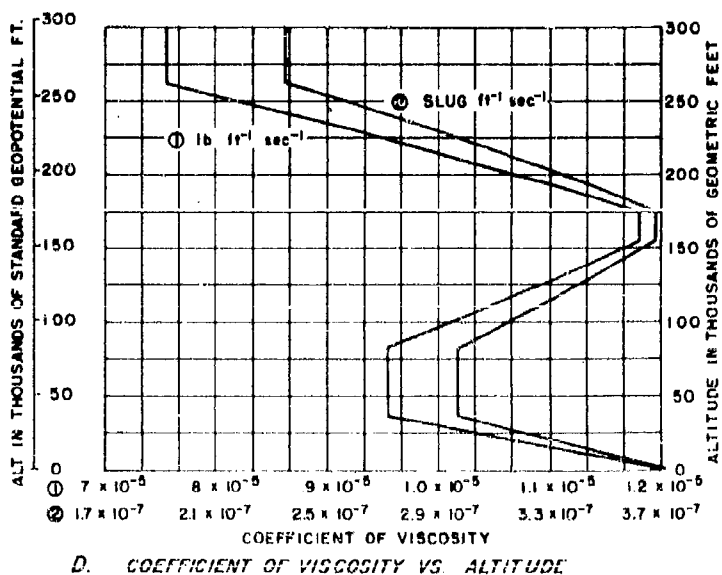
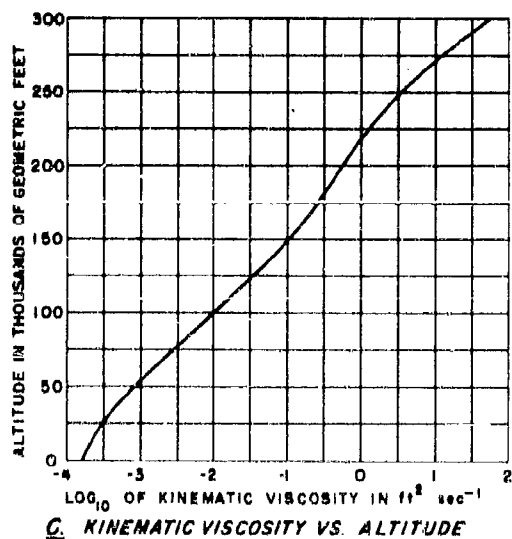
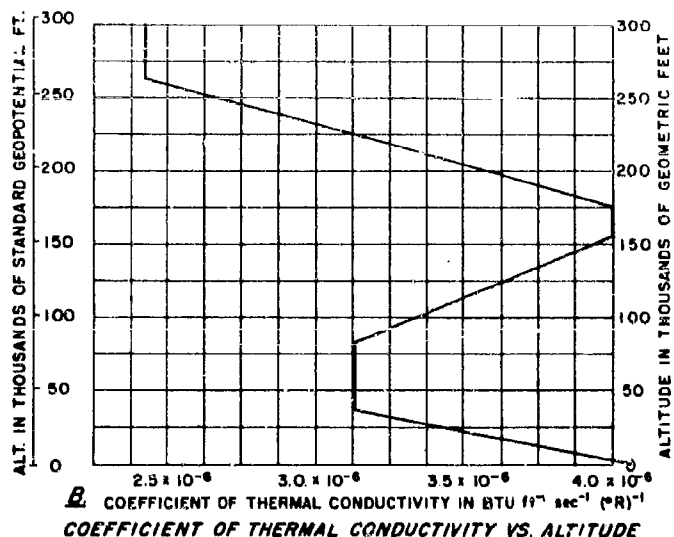
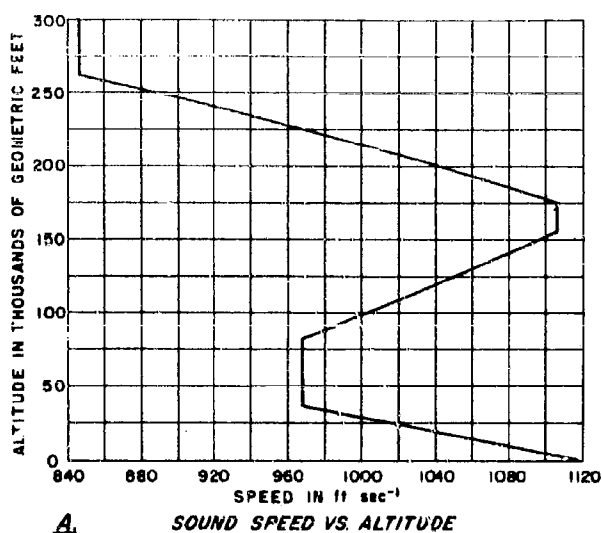


FIGURE II

TABLE IA
ATMOSPHERIC PROPERTIES AS A FUNCTION OF ALTITUDE,
METRIC UNITS

Temperature, Pressure, Density, and Molecular Weight

NOTE: A one- or two-digit number (preceded by a plus or minus sign) following the initial entry of each block indicates the power of 10 by which that entry and each succeeding entry of that block should be multiplied. A change of power occurring within a block is indicated by a similar notation.

MOLECULAR

WEIGHT

ALTITUDE		TEMPERATURE		PRESSURE		DENSITY		MOLECULAR WEIGHT M
Z, m	H, m'	T, °K	T _M , °K	P, mb	P, kg/ m ⁻²	P, mm Hg	ρ, kg m ⁻³	
- 5000	- 5004	320.69	320.69	1.7761 + 3	1.8112 + 4	1.3322 + 3	1.9296 + 0	28.966
- 4900	- 4904	320.03	320.03	1.7587	1.7934	1.3192	1.9145	28.966
- 4800	- 4804	319.38	319.38	1.7400	1.7743	1.3051	1.8980	28.966
- 4700	- 4703	318.73	318.73	1.7215	1.7554	1.2912	1.8816	28.966
- 4600	- 4603	318.08	318.08	1.7031	1.7366	1.2774	1.8653	28.966
- 4500	- 4503	317.43	317.43	1.6848	1.7180	1.2637	1.8491	28.966
- 4400	- 4403	316.78	316.78	1.6667	1.6996	1.2502	1.8330	28.966
- 4300	- 4303	316.13	316.13	1.6488	1.6813	1.2367	1.8171	28.966
- 4200	- 4203	315.48	315.48	1.6311	1.6632	1.2234	1.8012	28.966
- 4100	- 4103	314.83	314.83	1.6134	1.6453	1.2102	1.7854	28.966
- 4000	- 4003	314.18	314.18	1.5960 + 3	1.6275 + 4	1.1971 + 3	1.7698 + 0	28.966
- 3900	- 3902	313.53	313.53	1.5787	1.6098	1.1841	1.7542	28.966
- 3800	- 3802	312.87	312.87	1.5615	1.5923	1.1713	1.7388	28.966
- 3700	- 3702	312.22	312.22	1.5445	1.5750	1.1585	1.7234	28.966
- 3600	- 3602	311.57	311.57	1.5277	1.5578	1.1459	1.7082	28.966
- 3500	- 3502	310.92	310.92	1.5110	1.5408	1.1333	1.6931	28.966
- 3400	- 3402	310.27	310.27	1.4945	1.5239	1.1209	1.6780	28.966
- 3300	- 3302	309.62	309.62	1.4781	1.5072	1.1086	1.6631	28.966
- 3200	- 3202	308.97	308.97	1.4618	1.4906	1.0964	1.6483	28.966
- 3100	- 3102	308.32	308.32	1.4457	1.4742	1.0844	1.6336	28.966
- 3000	- 3001	307.67	307.67	1.4297 + 3	1.4579 + 4	1.0724 + 3	1.6189 + 0	28.966
- 2900	- 2901	307.02	307.02	1.4139	1.4418	1.0605	1.6044	28.966
- 2800	- 2801	306.37	306.37	1.3982	1.4258	1.0488	1.5900	28.966
- 2700	- 2701	305.72	305.72	1.3827	1.4100	1.0371	1.5757	28.966
- 2600	- 2601	305.07	305.07	1.3673	1.3943	1.0256	1.5615	28.966
- 2500	- 2501	304.42	304.42	1.3521	1.3787	1.0141	1.5473	28.966
- 2400	- 2401	303.77	303.77	1.3369	1.3633	1.0028	1.5333	28.966
- 2300	- 2301	303.12	303.12	1.3220	1.3480	9.9155 + 2	1.5194	28.966
- 2200	- 2201	302.46	302.46	1.3071	1.3329	9.8042	1.5056	28.966
- 2100	- 2101	301.81	301.81	1.2924	1.3179	9.6938	1.4918	28.966
- 2000	- 2001	301.16	301.16	1.2778 + 3	1.3030 + 4	9.5845 + 2	1.4782 + 0	28.966
- 1900	- 1901	300.51	300.51	1.2634	1.2883	9.4762	1.4646	28.966
- 1800	- 1801	299.86	299.86	1.2491	1.2737	9.3689	1.4512	28.966
- 1700	- 1700	299.21	299.21	1.2349	1.2593	9.2626	1.4379	28.966
- 1600	- 1600	298.56	298.56	1.2209	1.2449	9.1573	1.4246	28.966
- 1500	- 1500	297.91	297.91	1.2070	1.2308	9.0530	1.4114	28.966
- 1400	- 1400	297.26	297.26	1.1932	1.2167	8.9496	1.3984	28.966
- 1300	- 1300	296.61	296.61	1.1795	1.2028	8.8471	1.3854	28.966
- 1200	- 1200	295.96	295.96	1.1660	1.1890	8.7457	1.3725	28.966
- 1100	- 1100	295.31	295.31	1.1526	1.1753	8.6451	1.3597	28.966
- 1000	- 1000	294.66	294.66	1.1393 + 3	1.1618 + 4	8.5456 + 2	1.3470 + 0	28.966
- 900	- 900	294.01	294.01	1.1262	1.1484	8.4469	1.3344	28.966
- 800	- 800	293.36	293.36	1.1131	1.1351	8.3492	1.3219	28.966
- 700	- 700	292.71	292.71	1.1002	1.1219	8.2524	1.3095	28.966
- 600	- 600	292.06	292.06	1.0874	1.1089	8.1565	1.2972	28.966
- 500	- 500	291.41	291.41	1.0748	1.0960	8.0613	1.2849	28.966
- 400	- 400	290.76	290.76	1.0622	1.0832	7.9675	1.2728	28.966
- 300	- 300	290.11	290.11	1.0498	1.0705	7.8743	1.2607	28.966
- 200	- 200	289.46	289.46	1.0375	1.0580	7.7820	1.2487	28.966
- 100	- 100	288.81	288.81	1.0253	1.0455	7.6906	1.2368	28.966
0	0	288.16	288.16	1.01325 + 3	1.0332 + 4	7.6000 + 2	1.2250 + 0	28.966
100	100	287.51	287.51	1.0013	1.0210	7.5103	1.2133	28.966
200	200	286.86	286.86	9.8945 + 2	1.0090	7.4215	1.2017	28.966
300	300	286.21	286.21	9.7773	9.9700 + 3	7.3336	1.1901	28.966
400	400	285.56	285.56	9.6611	9.8516	7.2464	1.1787	28.966
500	500	284.91	284.91	9.5461	9.7343	7.1602	1.1673	28.966
600	600	284.26	284.26	9.4322	9.6182	7.0748	1.1560	28.966
700	700	283.61	283.61	9.3194	9.5032	6.9901	1.1448	28.966
800	800	282.96	282.96	9.2077	9.3893	6.9064	1.1337	28.966
900	900	282.31	282.31	9.0971	9.2765	6.8234	1.1226	28.966

ALTITUDE		TEMPERATURE		PRESSURE			DENSITY	MOLECULAR WEIGHT
Z, m	H, m'	T, °K	T _M , °K	P, mb	P, kgf m ⁻²	P, mm Hg	ρ, kg m ⁻³	M
1000	1000	281.66	281.66	8.9876 + 2	9.1648 + 3	6.7413 + 2	1.1117 + 0	28.966
1100	1100	281.01	281.01	8.8792	9.0542	6.6599	1.1008	28.966
1200	1200	280.36	280.36	8.7718	8.9447	6.5794	1.0900	28.966
1300	1300	279.71	279.71	8.6655	8.8363	6.4996	1.0793	28.966
1400	1400	279.06	279.06	8.5602	8.7290	6.4207	1.0687	28.966
1500	1500	278.41	278.41	8.4560	8.6227	6.3425	1.0581	28.966
1600	1600	277.76	277.76	8.3527	8.5174	6.2651	1.0476	28.966
1700	1700	277.11	277.11	8.2506	8.4132	6.1884	1.0373	28.966
1800	1799	276.46	276.46	8.1494	8.3101	6.1126	1.0269	28.966
1900	1899	275.81	275.81	8.0493	8.2080	6.0374	1.0167	28.966
2000	1999	275.16	275.16	7.9501 + 2	8.1069 + 3	5.9631 + 2	1.0066 + 0	28.966
2100	2099	274.51	274.51	7.8520	8.0068	5.8895	9.9649 - 1	28.966
2200	2199	273.86	273.86	7.7548	7.9077	5.8166	9.8649	28.966
2300	2299	273.22	273.22	7.6586	7.8096	5.7444	9.7657	28.966
2400	2399	272.57	272.57	7.5634	7.7125	5.6730	9.6673	28.966
2500	2499	271.92	271.92	7.4692	7.6164	5.6023	9.5696	28.966
2600	2599	271.27	271.27	7.3759	7.5213	5.5323	9.4727	28.966
2700	2699	270.62	270.62	7.2835	7.4271	5.4631	9.3765	28.966
2800	2799	269.97	269.97	7.1921	7.3339	5.3945	9.2811	28.966
2900	2899	269.32	269.32	7.1016	7.2416	5.3267	9.1865	28.966
3000	2999	268.67	268.67	7.0121 + 2	7.1503 + 3	5.2595 + 2	9.0926 - 1	28.966
3100	3098	268.02	268.02	6.9235	7.0600	5.1930	8.9994	28.966
3200	3198	267.37	267.37	6.8357	6.9705	5.1272	8.9070	28.966
3300	3298	266.72	266.72	6.7489	6.8820	5.0621	8.8153	28.966
3400	3398	266.07	266.07	6.6630	6.7944	4.9977	8.7243	28.966
3500	3498	265.42	265.42	6.5780	6.7077	4.9339	8.6341	28.966
3600	3598	264.77	264.77	6.4939	6.6219	4.8708	8.5445	28.966
3700	3698	264.12	264.12	6.4106	6.5370	4.8084	8.4557	28.966
3800	3798	263.47	263.47	6.3282	6.4530	4.7466	8.3676	28.966
3900	3898	262.83	262.83	6.2467	6.3698	4.6854	8.2802	28.966
4000	3997	262.18	262.18	6.1660 + 2	6.2876 + 3	4.6249 + 2	8.1935 - 1	28.966
4100	4097	261.53	261.53	6.0862	6.2062	4.5650	8.1075	28.966
4200	4197	260.88	260.88	6.0072	6.1256	4.5058	8.0222	28.966
4300	4297	260.23	260.23	5.9290	6.0459	4.4472	7.9376	28.966
4400	4397	259.58	259.58	5.8517	5.9671	4.3892	7.8536	28.966
4500	4497	258.93	258.93	5.7752	5.8891	4.3318	7.7704	28.966
4600	4597	258.28	258.28	5.6995	5.8119	4.2750	7.6878	28.966
4700	4697	257.63	257.63	5.6247	5.7356	4.2188	7.6059	28.966
4800	4796	256.98	256.98	5.5506	5.6600	4.1633	7.5247	28.966
4900	4896	256.33	256.33	5.4773	5.5853	4.1083	7.4442	28.966
5000	4996	255.69	255.69	5.4048 + 2	5.5114 + 3	4.0539 + 2	7.3643 - 1	28.966
5100	5096	255.04	255.04	5.3331	5.4382	4.0001	7.2851	28.966
5200	5196	254.39	254.39	5.2621	5.3659	3.9469	7.2065	28.966
5300	5296	253.74	253.74	5.1920	5.2943	3.8943	7.1286	28.966
5400	5395	253.09	253.09	5.1226	5.2236	3.8422	7.0513	28.966
5500	5495	252.44	252.44	5.0539	5.1535	3.7907	6.9747	28.966
5600	5595	251.79	251.79	4.9860	5.0843	3.7398	6.8987	28.966
5700	5695	251.14	251.14	4.9188	5.0158	3.6894	6.8234	28.966
5800	5795	250.49	250.49	4.8524	4.9481	3.6396	6.7486	28.966
5900	5895	249.85	249.85	4.7867	4.8811	3.5903	6.6746	28.966
6000	5994	249.20	249.20	4.7217 + 2	4.8148 + 3	3.5416 + 2	6.6011 - 1	28.966
6100	6094	248.55	248.55	4.6575	4.7493	3.4934	6.5283	28.966
6200	6194	247.90	247.90	4.5939	4.6845	3.4457	6.4561	28.966
6300	6294	247.25	247.25	4.5311	4.6204	3.3986	6.3845	28.966
6400	6394	246.60	246.60	4.4690	4.5571	3.3520	6.3135	28.966
6500	6493	245.95	245.95	4.4075	4.4944	3.3059	6.2431	28.966
6600	6593	245.30	245.30	4.3468	4.4325	3.2603	6.1733	28.966
6700	6693	244.66	244.66	4.2867	4.3712	3.2153	6.1041	28.966
6800	6793	244.01	244.01	4.2273	4.3106	3.1707	6.0356	28.966
6900	6893	243.36	243.36	4.1686	4.2507	3.1267	5.9676	28.966

ALTITUDE		TEMPERATURE		PRESSURE		DENSITY		MOLECULAR
Z, m	H, m'	T, °K	T _M , °K	P, mib	P, kgf/m ²	P, mm Hg	ρ, kg m ⁻³	WEIGHT
								M
7000	6992	242.71	242.71	4.1105 + 2	4.1915 + 3	3.0831 + 2	5.9002 - 1	28.966
7100	7092	242.06	242.06	4.0531	4.1330	3.0401	5.8334	28.966
7200	7192	241.41	241.41	3.9963	4.0751	2.9975	5.7671	28.966
7300	7292	240.76	240.76	3.9402	4.0179	2.9554	5.7015	28.966
7400	7391	240.12	240.12	3.8848	3.9614	2.9138	5.6364	28.966
7500	7491	239.47	239.47	3.8299	3.9054	2.8727	5.5719	28.966
7600	7591	238.82	238.82	3.7757	3.8502	2.8320	5.5080	28.966
7700	7691	238.17	238.17	3.7222	3.7956	2.7919	5.4446	28.966
7800	7790	237.52	237.52	3.6692	3.7416	2.7521	5.3818	28.966
7900	7890	236.87	236.87	3.6169	3.6882	2.7129	5.3195	28.966
8000	7990	236.23	236.23	3.5651 + 2	3.6354 + 3	2.6741 + 2	5.2578 - 1	28.966
8100	8090	235.58	235.58	3.5140	3.5833	2.6357	5.1967	28.966
8200	8189	234.93	234.93	3.4635	3.5318	2.5978	5.1361	28.966
8300	8289	234.28	234.28	3.4135	3.4808	2.5604	5.0760	28.966
8400	8389	233.63	233.63	3.3642	3.4305	2.5233	5.0165	28.966
8500	8489	232.98	232.98	3.3154	3.3808	2.4867	4.9575	28.966
8600	8588	232.34	232.34	3.2672	3.3316	2.4506	4.8991	28.966
8700	8688	231.69	231.69	3.2196	3.2830	2.4149	4.8412	28.966
8800	8788	231.04	231.04	3.1725	3.2350	2.3796	4.7838	28.966
8900	8888	230.39	230.39	3.1260	3.1876	2.3447	4.7269	28.966
9000	8987	229.74	229.74	3.0800 + 2	3.1408 + 3	2.3102 + 2	4.6706 - 1	28.966
9100	9087	229.09	229.09	3.0346	3.0945	2.2762	4.6148	28.966
9200	9187	228.45	228.45	2.9898	3.0487	2.2425	4.5595	28.966
9300	9286	227.80	227.80	2.9455	3.0035	2.2093	4.5047	28.966
9400	9386	227.15	227.15	2.9017	2.9589	2.1764	4.4504	28.966
9500	9486	226.50	226.50	2.8584	2.9148	2.1440	4.3966	28.966
9600	9586	225.85	225.85	2.8157	2.8712	2.1120	4.3433	28.966
9700	9685	225.21	225.21	2.7735	2.8282	2.0803	4.2905	28.966
9800	9785	224.56	224.56	2.7318	2.7857	2.0490	4.2382	28.966
9900	9885	223.91	223.91	2.6906	2.7437	2.0181	4.1864	28.966
10000	9984	223.26	223.26	2.6500 + 2	2.7022 + 3	1.9876 + 2	4.1351 - 1	28.966
10100	10084	222.61	222.61	2.6098	2.6612	1.9575	4.0842	28.966
10200	10184	221.97	221.97	2.5701	2.6208	1.9277	4.0339	28.966
10300	10283	221.32	221.32	2.5309	2.5808	1.8983	3.9840	28.966
10400	10383	220.67	220.67	2.4922	2.5414	1.8693	3.9346	28.966
10500	10483	220.02	220.02	2.4540	2.5024	1.8407	3.8857	28.966
10600	10582	219.37	219.37	2.4163	2.4639	1.8123	3.8372	28.966
10700	10682	218.73	218.73	2.3790	2.4259	1.7844	3.7892	28.966
10800	10782	218.08	218.08	2.3422	2.3884	1.7568	3.7417	28.966
10900	10881	217.43	217.43	2.3059	2.3513	1.7295	3.6946	28.966
11000	10981	216.78	216.78	2.2700 + 2	2.3147 + 3	1.7026 + 2	3.6480 - 1	28.966
11100	11081	216.66	216.66	2.2346	2.2786	1.6761	3.5932	28.966
11200	11180	216.66	216.66	2.1997	2.2431	1.6499	3.5371	28.966
11300	11280	216.66	216.66	2.1654	2.2081	1.6242	3.4820	28.966
11400	11380	216.66	216.66	2.1317	2.1737	1.5989	3.4277	28.966
11500	11479	216.66	216.66	2.0985	2.1398	1.5740	3.3743	28.966
11600	11579	216.66	216.66	2.0657	2.1065	1.5494	3.3217	28.966
11700	11679	216.66	216.66	2.0335	2.0736	1.5253	3.2699	28.966
11800	11778	216.66	216.66	2.0018	2.0413	1.5015	3.2189	28.966
11900	11878	216.66	216.66	1.9706	2.0095	1.4781	3.1687	28.966
12000	11977	216.66	216.66	1.9399 + 2	1.9782 + 3	1.4551 + 2	3.1194 - 1	28.966
12100	12077	216.66	216.66	1.9097	1.9473	1.4324	3.0707	28.966
12200	12177	216.66	216.66	1.8799	1.9170	1.4101	3.0229	28.966
12300	12276	216.66	216.66	1.8506	1.8871	1.3881	2.9758	28.966
12400	12375	216.66	216.66	1.8218	1.8577	1.3664	2.9294	28.966
12500	12475	216.66	216.66	1.7934	1.8287	1.3452	2.8837	28.966
12600	12575	216.66	216.66	1.7654	1.8003	1.3242	2.8388	28.966
12700	12675	216.66	216.66	1.7379	1.7722	1.3036	2.7945	28.966
12800	12774	216.66	216.66	1.7108	1.7446	1.2832	2.7510	28.966
12900	12874	216.66	216.66	1.6842	1.7174	1.2632	2.7081	28.966

ALTITUDE		TEMPERATURE		PRESSURE			DENSITY	MOLECULAR
Z, m	H, m'	T, °K	T _M , °K	P, mb	P, kg/m ²	P, mm Hg	ρ, kg m ⁻³	WEIGHT M
13000	12973	216.66	216.66	1.6579 + 2	1.6906 + 3	1.2436 + 2	2.6659 - 1	28.966
13100	13073	216.66	216.66	1.6321	1.6643	1.2242	2.6244	28.966
13200	13173	216.66	216.66	1.6067	1.6384	1.2051	2.5835	28.966
13300	13272	216.66	216.66	1.5816	1.6128	1.1863	2.5433	28.966
13400	13372	216.66	216.66	1.5570	1.5877	1.1679	2.5036	28.966
13500	13471	216.66	216.66	1.5327	1.5630	1.1497	2.4646	28.966
13600	13571	216.66	216.66	1.5089	1.5386	1.1317	2.4262	28.966
13700	13671	216.66	216.66	1.4854	1.5146	1.1141	2.3884	28.966
13800	13770	216.66	216.66	1.4622	1.4911	1.0968	2.3512	28.966
13900	13870	216.66	216.66	1.4394	1.4678	1.0797	2.3146	28.966
14000	13969	216.66	216.66	1.4170 + 2	1.4450 + 3	1.0629 + 2	2.2785 - 1	28.966
14100	14069	216.66	216.66	1.3950	1.4225	1.0463	2.2430	28.966
14200	14168	216.66	216.66	1.3732	1.4003	1.0300	2.2081	28.966
14300	14268	216.66	216.66	1.3518	1.3785	1.0140	2.1737	28.966
14400	14367	216.66	216.66	1.3308	1.3570	9.9817 + 1	2.1399	28.966
14500	14467	216.66	216.66	1.3101	1.3359	9.8262	2.1065	28.966
14600	14567	216.66	216.66	1.2896	1.3151	9.6732	2.0737	28.966
14700	14666	216.66	216.66	1.2696	1.2946	9.5225	2.0414	28.966
14800	14766	216.66	216.66	1.2498	1.2744	9.3742	2.0096	28.966
14900	14865	216.66	216.66	1.2303	1.2546	9.2282	1.9783	28.966
15000	14965	216.66	216.66	1.2112 + 2	1.2350 + 3	9.0845 + 1	1.9475 - 1	28.966
15100	15064	216.66	216.66	1.1923	1.2158	8.9431	1.9172	28.966
15200	15164	216.66	216.66	1.1737	1.1969	8.8038	1.8874	28.966
15300	15263	216.66	216.66	1.1555	1.1782	8.6667	1.8580	28.966
15400	15363	216.66	216.66	1.1375	1.1599	8.5318	1.8290	28.966
15500	15462	216.66	216.66	1.1198	1.1418	8.3989	1.8006	28.966
15600	15562	216.66	216.66	1.1023	1.1241	8.2682	1.7725	28.966
15700	15661	216.66	216.66	1.0852	1.1066	8.1394	1.7449	28.966
15800	15761	216.66	216.66	1.0683	1.0893	8.0127	1.7178	28.966
15900	15860	216.66	216.66	1.0516	1.0724	7.8880	1.6910	28.966
16000	15960	216.66	216.66	1.0353 + 2	1.0557 + 3	7.7652 + 1	1.6647 - 1	28.966
16100	16059	216.66	216.66	1.0192	1.0392	7.6443	1.6388	28.966
16200	16159	216.66	216.66	1.0033	1.0231	7.5253	1.6133	28.966
16300	16258	216.66	216.66	9.8767 + 1	1.0071	7.4082	1.5882	28.966
16400	16358	216.66	216.66	9.7230	9.9147 + 2	7.2929	1.5634	28.966
16500	16457	216.66	216.66	9.5717	9.7604	7.1793	1.5391	28.966
16600	16557	216.66	216.66	9.4227	9.6085	7.0676	1.5151	28.966
16700	16656	216.66	216.66	9.2760	9.4589	6.9576	1.4916	28.966
16800	16756	216.66	216.66	9.1317	9.3117	6.8493	1.4683	28.966
16900	16855	216.66	216.66	8.9895	9.1668	6.7427	1.4455	28.966
17000	16955	216.66	216.66	8.8496 + 1	9.0241 + 2	6.6378 + 1	1.4230 - 1	28.966
17100	17054	216.66	216.66	8.7119	8.8837	6.5345	1.4009	28.966
17200	17154	216.66	216.66	8.5763	8.7454	6.4328	1.3791	28.966
17300	17253	216.66	216.66	8.4429	8.6093	6.3327	1.3576	28.966
17400	17353	216.66	216.66	8.3115	8.4754	6.2341	1.3365	28.966
17500	17452	216.66	216.66	8.1822	8.3435	6.1371	1.3157	28.966
17600	17551	216.66	216.66	8.0549	8.2137	6.0416	1.2952	28.966
17700	17651	216.66	216.66	7.9295	8.0859	5.9476	1.2751	28.966
17800	17750	216.66	216.66	7.8062	7.9601	5.8551	1.2552	28.966
17900	17850	216.66	216.66	7.6847	7.8362	5.7640	1.2357	28.966
18000	17949	216.66	216.66	7.5652 + 1	7.7143 + 2	5.6743 + 1	1.2165 - 1	28.966
18100	18049	216.66	216.66	7.4475	7.5943	5.5861	1.1975	28.966
18200	18148	216.66	216.66	7.3316	7.4762	5.4992	1.1789	28.966
18300	18247	216.66	216.66	7.2175	7.3599	5.4136	1.1606	28.966
18400	18347	216.66	216.66	7.1053	7.2454	5.3294	1.1425	28.966
18500	18446	216.66	216.66	6.9947	7.1327	5.2465	1.1247	28.966
18600	18546	216.66	216.66	6.8859	7.0217	5.1649	1.1072	28.966
18700	18645	216.66	216.66	6.7788	6.9125	5.0845	1.0900	28.966
18800	18745	216.66	216.66	6.6734	6.8050	5.0055	1.0731	28.966
18900	18844	216.66	216.66	6.5696	6.6991	4.9276	1.0564	28.966

ALTITUDE		TEMPERATURE		PRESSURE		DENSITY		MOLECULAR WEIGHT
Z, m	H, m'	T, °K	T _M , °K	P, mb	P, kg/m ²	P, mm Hg	ρ, kg m ⁻³	M
19000	18943	216.66	216.66	6.4674 + 1	6.5949 + 2	4.8510 + 1	1.0399 - 1	28.966
19100	19043	216.66	216.66	6.3668	6.4924	4.7755	1.0238	28.966
19200	19142	216.66	216.66	6.2678	6.3914	4.7013	1.0079	28.966
19300	19242	216.66	216.66	6.1703	6.2920	4.6281	9.9218 - 2	28.966
19400	19341	216.66	216.66	6.0744	6.1942	4.5562	9.7675	28.966
19500	19440	216.66	216.66	5.9799	6.0978	4.4853	9.6156	28.966
19600	19540	216.66	216.66	5.8869	6.0030	4.4156	9.4661	28.966
19700	19639	216.66	216.66	5.7954	5.9097	4.3469	9.3189	28.966
19800	19739	216.66	216.66	5.7053	5.8178	4.2793	9.1740	28.966
19900	19838	216.66	216.66	5.6166	5.7273	4.2128	9.0313	28.966
20000	19937	216.66	216.66	5.5293 + 1	5.6383 + 2	4.1473 + 1	8.8909 - 2	28.966
20200	20136	216.66	216.66	5.3587	5.4643	4.0193	8.6166	28.966
20400	20335	216.66	216.66	5.1933	5.2957	3.8953	8.3508	28.966
20600	20533	216.66	216.66	5.0331	5.1324	3.7752	8.0931	28.966
20800	20732	216.66	216.66	4.8779	4.9740	3.6587	7.8435	28.966
21000	20931	216.66	216.66	4.7274	4.8206	3.5458	7.6015	28.966
21200	21130	216.66	216.66	4.5816	4.6719	3.4365	7.3671	28.966
21400	21328	216.66	216.66	4.4403	4.5278	3.3305	7.1399	28.966
21600	21527	216.66	216.66	4.3034	4.3882	3.2278	6.9197	28.966
21800	21725	216.66	216.66	4.1706	4.2529	3.1282	6.7053	28.966
22000	21924	216.66	216.66	4.0420 + 1	4.1217 + 2	3.0318 + 1	6.4995 - 2	28.966
22200	22123	216.66	216.66	3.9174	3.9946	2.9383	6.2991	28.966
22400	22321	216.66	216.66	3.7966	3.8715	2.8477	6.1049	28.966
22600	22520	216.66	216.66	3.6796	3.7521	2.7599	5.9167	28.966
22800	22719	216.66	216.66	3.5661	3.6364	2.6748	5.7343	28.966
23000	22917	216.66	216.66	3.4562	3.5243	2.5924	5.5575	28.966
23200	23116	216.66	216.66	3.3497	3.4157	2.5125	5.3862	28.966
23400	23314	216.66	216.66	3.2464	3.3104	2.4350	5.2202	28.966
23600	23513	216.66	216.66	3.1464	3.2084	2.3600	5.0593	28.966
23800	23711	216.66	216.66	3.0494	3.1095	2.2872	4.9034	28.966
24000	23910	216.66	216.66	2.9554 + 1	3.0137 + 2	2.2167 + 1	4.7522 - 2	28.966
24200	24108	216.66	216.66	2.8644	2.9208	2.1484	4.6058	28.966
24400	24307	216.66	216.66	2.7761	2.8308	2.0822	4.4639	28.966
24600	24505	216.66	216.66	2.6906	2.7436	2.0181	4.3263	28.966
24800	24704	216.66	216.66	2.6077	2.6591	1.9559	4.1931	28.966
25000	24902	216.66	216.66	2.5273	2.5772	1.8957	4.0639	28.966
25200	25100	216.96	216.96	2.4495	2.4978	1.8373	3.9333	28.966
25400	25299	217.56	217.56	2.3742	2.4211	1.7808	3.8020	28.966
25600	25497	218.15	218.15	2.3015	2.3469	1.7263	3.6755	28.966
25800	25696	218.75	218.75	2.2312	2.2792	1.6735	3.5535	28.966
26000	25894	219.34	219.34	2.1632 + 1	2.2059 + 2	1.6225 + 1	3.4359 - 2	28.966
26200	26092	219.94	219.94	2.0975	2.1388	1.5732	3.3223	28.966
26400	26291	220.53	220.53	2.0339	2.0740	1.5256	3.2131	28.966
26600	26489	221.13	221.13	1.9725	2.0114	1.4795	3.1076	28.966
26800	26687	221.72	221.72	1.9130	1.9507	1.4349	3.0059	28.966
27000	26886	222.32	222.32	1.8555	1.8921	1.3918	2.9077	28.966
27200	27084	222.91	222.91	1.7999	1.8354	1.3500	2.8130	28.966
27400	27282	223.51	223.51	1.7461	1.7805	1.3097	2.7217	28.966
27600	27481	224.10	224.10	1.6940	1.7274	1.2706	2.6335	28.966
27800	27679	224.70	224.70	1.6437	1.6761	1.2328	2.5484	28.966
28000	27877	225.29	225.29	1.5949 + 1	1.6264 + 2	1.1963 + 1	2.4663 - 2	28.966
28200	28075	225.89	225.89	1.5477	1.5783	1.1609	2.3871	28.966
28400	28274	226.48	226.48	1.5021	1.5317	1.1267	2.3106	28.966
28600	28472	227.08	227.08	1.4579	1.4866	1.0935	2.2367	28.966
28800	28670	227.67	227.67	1.4151	1.4430	1.0614	2.1654	28.966
29000	28868	228.26	228.26	1.3737	1.4008	1.0304	2.0966	28.966
29200	29066	228.86	228.86	1.3336	1.3599	1.0003	2.0301	28.966
29400	29265	229.45	229.45	1.2948	1.3203	9.7116 + 0	1.9659	28.966
29600	29463	230.05	230.05	1.2572	1.2820	9.4296	1.9099	28.966
29800	29661	230.64	230.64	1.2208	1.2448	9.1565	1.8440	28.966

ALTITUDE		TEMPERATURE		PRESSURE		DENSITY		MOLECULAR WEIGHT
Z, m	H, m'	T, °K	T _M , °K	P, mb	P, kgf m ⁻²	P, mm Hg	p, kg m ⁻³	M
30000	29859	231.24	231.24	1.1855 + 1	1.2089 + 2	8.8921 + 0	1.7861 - 2	28.966
30200	30057	231.83	231.83	1.1514	1.1741	8.6359	1.7302	28.966
30400	30255	232.43	232.43	1.1183	1.1403	8.3877	1.6762	28.966
30600	30453	233.02	233.02	1.0862	1.1076	8.1473	1.6240	28.966
30800	30651	233.61	233.61	1.0552	1.0760	7.9144	1.5735	28.966
31000	30850	234.21	234.21	1.0251	1.0453	7.6887	1.5248	28.966
31200	31048	234.80	234.80	9.9592 + 0	1.0156	7.4700	1.4777	28.966
31400	31246	235.40	235.40	9.6766	9.8674 + 1	7.2581	1.4321	28.966
31600	31444	235.99	235.99	9.4028	9.5882	7.0527	1.3881	28.966
31800	31642	236.59	236.59	9.1374	9.3176	6.8536	1.3455	28.966
32000	31840	237.18	237.18	8.8802 + 0	9.0552 + 1	6.6607 + 0	1.3044 - 2	28.966
32200	32038	237.77	237.77	8.6308	8.8009	6.4736	1.2646	28.966
32400	32236	238.37	238.37	8.3890	8.5544	6.2923	1.2261	28.966
32600	32434	238.96	238.96	8.1546	8.3154	6.1165	1.1889	28.966
32800	32632	239.55	239.55	7.9273	8.0836	5.9460	1.1529	28.966
33000	32830	240.15	240.15	7.7069	7.8589	5.7807	1.1180	28.966
33200	33028	240.74	240.74	7.4932	7.6409	5.6204	1.0844	28.966
33400	33225	241.34	241.34	7.2859	7.4295	5.4649	1.0518	28.966
33600	33423	241.93	241.93	7.0849	7.2245	5.3141	1.0202	28.966
33800	33621	242.52	242.52	6.8898	7.0257	5.1678	9.8972 - 3	28.966
34000	33819	243.12	243.12	6.7007 + 0	6.8328 + 1	5.0259 + 0	9.6020 - 3	28.966
34200	34017	243.71	243.71	6.5171	6.6456	4.8882	9.3162	28.966
34400	34215	244.30	244.30	6.3391	6.4640	4.7547	9.0396	28.966
34600	34413	244.90	244.90	6.1663	6.2879	4.6251	8.7720	28.966
34800	34611	245.49	245.49	5.9986	6.1169	4.4993	8.5128	28.966
35000	34808	246.09	246.09	5.8359	5.9510	4.3773	8.2620	28.966
35200	35006	246.68	246.68	5.6780	5.7900	4.2589	8.0191	28.966
35400	35204	247.27	247.27	5.5248	5.6337	4.1439	7.7839	28.966
35600	35402	247.87	247.87	5.3760	5.4820	4.0323	7.5562	28.966
35800	35600	248.46	248.46	5.2316	5.3348	3.9240	7.3357	28.966
36000	35797	249.05	249.05	5.0914 + 0	5.1918 + 1	3.8189 + 0	7.1221 - 3	28.966
36200	35995	249.65	249.65	4.9553	5.0530	3.7168	6.9132	28.966
36400	36193	250.24	250.24	4.8232	4.9183	3.6177	6.7149	28.966
36600	36390	250.83	250.83	4.6949	4.7874	3.5214	6.5208	28.966
36800	36588	251.42	251.42	4.5703	4.6604	3.4280	6.3328	28.966
37000	36786	252.02	252.02	4.4493	4.5370	3.3372	6.1506	28.966
37200	36984	252.61	252.61	4.3318	4.4172	3.2491	5.9741	28.966
37400	37181	253.20	253.20	4.2176	4.3008	3.1635	5.8030	28.966
37600	37379	253.80	253.80	4.1067	4.1877	3.0803	5.6373	28.966
37800	37577	254.39	254.39	3.9990	4.0779	2.9995	5.4767	28.966
38000	37774	254.98	254.98	3.8944 + 0	3.9712 + 1	2.9211 + 0	5.3210 - 3	28.966
38200	37972	255.58	255.58	3.7928	3.8673	2.8448	5.1701	28.966
38400	38169	256.17	256.17	3.6940	3.7668	2.7707	5.0238	28.966
38600	38367	256.76	256.76	3.5980	3.6690	2.6987	4.8820	28.966
38800	38565	257.35	257.35	3.5048	3.5739	2.6288	4.7445	28.966
39000	38762	257.95	257.95	3.4141	3.4813	2.5608	4.6112	28.966
39200	38960	258.54	258.54	3.3261	3.3916	2.4948	4.4819	28.966
39400	39157	259.13	259.13	3.2403	3.3043	2.4305	4.3566	28.966
39600	39355	259.72	259.72	3.1572	3.2195	2.3681	4.2350	28.966
39800	39552	260.32	260.32	3.0764	3.1370	2.3075	4.1171	28.966
40000	39750	260.91	260.91	2.9977 + 0	3.0568 + 1	2.2485 + 0	4.0028 - 3	28.966
40200	39947	261.50	261.50	2.9213	2.9789	2.1911	3.8919	28.966
40400	40145	262.09	262.09	2.8470	2.9051	2.1354	3.7843	28.966
40600	40342	262.69	262.69	2.7747	2.8294	2.0812	3.6799	28.966
40800	40540	263.28	263.28	2.7044	2.7577	2.0285	3.5786	28.966
41000	40737	263.87	263.87	2.6361	2.6880	1.9772	3.4804	28.966
41200	40935	264.46	264.46	2.5696	2.6203	1.9274	3.3850	28.966
41400	41132	265.05	265.05	2.5050	2.5544	1.8789	3.2925	28.966
41600	41330	265.65	265.65	2.4421	2.4903	1.8317	3.2027	28.966
41800	41527	266.24	266.24	2.3810	2.4279	1.7859	3.1156	28.966

ALTITUDE		TEMPERATURE		PRESSURE		DENSITY		MOLECULAR WEIGHT
Z, m	H, m'	T, °K	T _M , °K	P, mb	P, kg/m ²	P, mm Hg	ρ, kg/m ³	M
42000	41724	266.83	266.83	2.3215 + 0	2.3672 + 1	1.7412 + 0	3.0310 - 3	28.966
42200	41922	267.43	267.43	2.2636	2.3082	1.6978	2.9489	28.966
42400	42119	268.02	268.02	2.2073	2.2508	1.6556	2.8692	28.966
42600	42316	268.61	268.61	2.1525	2.1950	1.6145	2.7918	28.966
42800	42514	269.20	269.20	2.0992	2.1406	1.5746	2.7167	28.966
43000	42711	269.79	269.79	2.0474	2.0877	1.5357	2.6438	28.966
43200	42908	270.39	270.39	1.9969	2.0363	1.4978	2.5730	28.966
43400	43106	270.98	270.98	1.9478	1.9862	1.4610	2.5042	28.966
43600	43303	271.57	271.57	1.9000	1.9374	1.4251	2.4374	28.966
43800	43500	272.16	272.16	1.8535	1.8900	1.3902	2.3726	28.966
44000	43698	272.75	272.75	1.8082 + 0	1.8438 + 1	1.3562 + 0	2.3096 - 3	28.966
44200	43895	273.34	273.34	1.7641	1.7989	1.3232	2.2484	28.966
44400	44092	273.94	273.94	1.7212	1.7551	1.2910	2.1889	28.966
44600	44289	274.53	274.53	1.6794	1.7125	1.2597	2.1312	28.966
44800	44486	275.12	275.12	1.6387	1.6710	1.2291	2.0751	28.966
45000	44684	275.71	275.71	1.5991	1.6307	1.1994	2.0206	28.966
45200	44881	276.30	276.30	1.5606	1.5913	1.1705	1.9677	28.966
45400	45078	276.89	276.89	1.5230	1.5530	1.1424	1.9162	28.966
45600	45275	277.49	277.49	1.4865	1.5158	1.1149	1.8662	28.966
45800	45472	278.08	278.08	1.4508	1.4794	1.0882	1.8177	28.966
46000	45670	278.67	278.67	1.4162 + 0	1.4441 + 1	1.0622 + 0	1.7704 - 3	28.966
46200	45867	279.26	279.26	1.3824	1.4096	1.0369	1.7246	28.966
46400	46064	279.85	279.85	1.3495	1.3761	1.0122	1.6799	28.966
46600	46261	280.44	280.44	1.3174	1.3434	9.8815 - 1	1.6366	28.966
46800	46458	281.03	281.03	1.2862	1.3116	9.6473	1.5944	28.966
47000	46655	281.63	281.63	1.2558	1.2805	9.4192	1.5535	28.966
47200	46852	282.22	282.22	1.2261	1.2503	9.1969	1.5136	28.966
47400	47049	282.82	282.82	1.1973	1.2209	8.9805	1.4757	28.966
47600	47246	282.86	282.86	1.1691	1.1921	8.7689	1.4409	28.966
47800	47443	282.86	282.86	1.1416	1.1641	8.5626	1.4070	28.966
48000	47640	282.86	282.86	1.1147 + 0	1.1367 + 1	8.3611 - 1	1.3739 - 3	28.966
48200	47837	282.86	282.86	1.0885	1.1099	8.1643	1.3416	28.966
48400	48034	282.86	282.86	1.0629	1.0838	7.9722	1.3100	28.966
48600	48231	282.86	282.86	1.0379	1.0583	7.7847	1.2792	28.966
48800	48428	282.86	282.86	1.0135	1.0334	7.6015	1.2491	28.966
49000	48625	282.86	282.86	9.8961 - 1	1.0091	7.4227	1.2197	28.966
49200	48822	282.86	282.86	9.6633	9.8538 + 0	7.2481	1.1910	28.966
49400	49019	282.86	282.86	9.4360	9.6220	7.0776	1.1630	28.966
49600	49216	282.86	282.86	9.2141	9.3957	6.9111	1.1357	28.966
49800	49413	282.86	282.86	8.9974	9.1748	6.7486	1.1089	28.966
50000	49610	282.86	282.86	8.7858 - 1	8.9590 + 0	6.5899 - 1	1.0829 - 3	28.966
50200	50102	282.86	282.86	8.2783	8.4416	6.2093	1.0203	28.966
50400	50294	282.86	282.86	7.8003	7.9541	5.8507	9.6140 - 4	28.966
50600	50486	282.86	282.86	7.3499	7.4948	5.5129	9.0589	28.966
50800	50678	282.86	282.86	6.9256	7.0622	5.1946	8.5360	28.966
51000	50870	282.86	282.86	6.5259	6.6545	4.8949	8.0433	28.966
51200	51062	282.86	282.86	6.1493	6.2705	4.6123	7.5791	28.966
51400	51253	282.86	282.86	5.7944	5.9087	4.3462	7.1478	28.966
51600	51445	280.21	280.21	5.4586	5.5662	4.0943	6.7867	28.966
51800	51637	277.99	277.99	5.1398	5.2411	3.8551	6.4412	28.966
52000	51828	275.78	275.78	4.8373 - 1	4.9327 + 0	3.6283 - 1	6.1108 - 4	28.966
52200	52020	273.57	273.57	4.5505	4.6402	3.4132	5.7949	28.966
52400	52211	271.36	271.36	4.2786	4.3630	3.2032	5.4931	28.966
52600	52402	269.15	269.15	4.0210	4.1003	3.0160	5.2047	28.966
52800	52593	266.94	266.94	3.7770	3.8514	2.8329	4.9293	28.966
53000	52785	264.73	264.73	3.5459	3.6158	2.6597	4.6664	28.966
53200	52976	262.52	262.52	3.3273	3.3929	2.4957	4.4156	28.966
53400	53167	260.31	260.31	3.1205	3.1820	2.3406	4.1763	28.966
53600	53357	258.10	258.10	2.9250	2.9827	2.1939	3.9482	28.966
53800	53548	255.89	255.89	2.7403	2.7943	2.0554	3.7307	28.966

ALTITUDE		TEMPERATURE		PRESSURE		DENSITY	MOLECULAR WEIGHT	
Z, m	H, m'	T, °K	T _M , °K	P, mb	P, kg/m ²	P, mm Hg	ρ, kg m ⁻³	M
60000	59439	253.68	253.68	2.5657 - 1	2.6163 + 0	1.9245 - 1	3.5235 - 4	28.966
60500	59930	251.48	251.48	2.4010	2.4483	1.8009	3.3262	28.966
61000	60420	249.27	249.27	2.2455	2.2898	1.6843	3.1384	28.966
61500	60911	247.06	247.06	2.0989	2.1403	1.5743	2.9597	28.966
62000	61401	244.86	244.86	1.9607	1.9993	1.4706	2.7897	28.966
62500	61891	242.65	242.65	1.8304	1.8665	1.3729	2.6281	28.966
63000	62382	240.44	240.44	1.7073	1.7415	1.2810	2.4745	28.966
63500	62872	238.24	238.24	1.5924	1.6238	1.1944	2.3286	28.966
64000	63362	236.03	236.03	1.4838	1.5131	1.1130	2.1901	28.966
64500	63852	233.83	233.83	1.3818	1.4090	1.0364	2.0587	28.966
65000	64342	231.62	231.62	1.2859 - 1	1.3112 + 0	9.6447 - 2	1.9341 - 4	28.966
65500	64832	229.42	229.42	1.1958	1.2194	8.9693	1.8159	28.966
66000	65322	227.21	227.21	1.1113	1.1332	8.3354	1.7039	28.966
66500	65812	225.01	225.01	1.0320	1.0524	7.7408	1.5979	28.966
67000	66301	222.80	222.80	9.5773 - 2	9.7661 - 1	7.1836	1.4975	28.966
67500	66791	220.60	220.60	8.8813	9.0564	6.6615	1.4026	28.966
68000	67280	218.40	218.40	8.2298	8.3920	6.1728	1.3128	28.966
68500	67770	216.20	216.20	7.6202	7.7705	5.7156	1.2279	28.966
69000	68259	213.99	213.99	7.0503	7.1894	5.2882	1.1478	28.966
69500	68748	211.79	211.79	6.5179	6.6464	4.8888	1.0722	28.966
70000	69238	209.59	209.59	6.0209 - 2	6.1396 - 1	4.5160 - 2	1.0008 - 4	28.966
70500	69727	207.39	207.39	5.5571	5.6667	4.1682	9.3351 - 5	28.966
71000	70216	205.19	205.19	5.1247	5.2258	3.8439	8.7011	28.966
71500	70705	202.99	202.99	4.7220	4.8151	3.5418	8.1042	28.966
72000	71194	200.79	200.79	4.3470	4.4287	3.2605	7.5424	28.966
72500	71682	198.59	198.59	3.9982	4.0771	2.9989	7.0141	28.966
73000	72171	196.39	196.39	3.6741	3.7465	2.7358	6.5176	28.966
73500	72660	194.19	194.19	3.3730	3.4395	2.5300	6.0513	28.966
74000	73148	191.99	191.99	3.0937	3.1547	2.3204	5.6157	28.966
74500	73637	189.79	189.79	2.8347	2.8906	2.1262	5.2053	28.966
75000	74125	187.60	187.60	2.5947 - 2	2.6459 - 1	1.9462 - 2	4.8187 - 5	28.966
75500	74614	185.4	185.4	2.373	2.419	1.780	4.459	28.97
76000	75102	183.2	183.2	2.167	2.210	1.626	4.122	28.97
76500	75590	181.0	181.0	1.978	2.017	1.483	3.806	28.97
77000	76078	178.8	178.8	1.803	1.838	1.352	3.512	28.97
77500	76566	176.6	176.6	1.641	1.673	1.231	3.237	28.97
78000	77054	174.4	174.4	1.492	1.522	1.119	2.981	28.97
78500	77542	172.2	172.2	1.356	1.382	1.017	2.742	28.97
79000	78030	170.0	170.0	1.230	1.254	9.224 - 3	2.520	28.97
79500	78518	167.8	167.8	1.114	1.136	8.357	2.313	28.97
80000	79006	165.7	165.7	1.008 - 2	1.028 - 1	7.563 - 3	2.120 - 5	28.97
80500	79493	163.7	163.7	9.118 - 3	9.298 + 2	6.839	1.918	28.97
81000	79981	163.7	163.7	8.246	8.408	6.185	1.734	28.97
81500	80468	163.7	163.7	7.457	7.604	5.593	1.568	28.97
82000	80956	163.7	163.7	6.744	6.877	5.058	1.418	28.97
82500	81443	163.7	163.7	6.099	6.219	4.573	1.283	28.97
83000	81930	163.7	163.7	5.516	5.625	4.157	1.160	28.97
83500	82417	163.7	163.7	4.989	5.087	3.742	1.049	28.97
84000	82904	163.7	163.7	4.512	4.601	3.384	9.489 - 6	28.97
84500	83391	163.7	163.7	4.081	4.161	3.061	8.522	28.97
85000	83878	163.7	163.7	3.691 - 3	3.764 - 2	2.768 - 3	7.762 - 6	28.97
85500	84365	163.7	163.7	3.338	3.404	2.504	7.021	28.97
86000	84852	163.7	163.7	3.020	3.079	2.263	6.350	28.97
86500	85339	163.7	163.7	2.731	2.785	2.049	5.744	28.97
87000	85825	163.7	163.7	2.470	2.519	1.853	5.195	28.97
87500	86312	163.7	163.7	2.234	2.279	1.676	4.699	28.97
88000	86798	163.7	163.7	2.021	2.061	1.516	4.251	28.97
88500	87285	163.7	163.7	1.828	1.864	1.371	3.845	28.97
89000	87771	163.7	163.7	1.654	1.686	1.240	3.478	28.97
89500	88257	163.7	163.7	1.496	1.525	1.122	3.146	28.97

ALTITUDE		TEMPERATURE		PRESSURE		DENSITY		MOLECULAR WEIGHT	
Z, m	H, m'	T, °K	T _M , °K	P, mb	P, kg/m ²	P, mm Hg	ρ, kg m ⁻³	M	
90000	88743	165.7	165.7	1.353 - 3	1.380 - 2	1.015 - 3	2.846 - 6	28.97	
90500	89230	165.7	165.7	1.224	1.248	9.162 - 4	2.574	28.97	
91000	89716	165.7	165.7	1.107	1.129	8.306	2.329	28.97	
91500	90202	166.5	166.5	1.002	1.022	7.515	2.097	28.96	
92000	90687	168.4	168.4	9.074 - 4	9.253 - 3	6.806	1.877	28.96	
92500	91173	170.3	170.4	8.227	8.389	6.171	1.682	28.96	
93000	91659	172.2	172.3	7.467	7.614	5.601	1.510	28.95	
93500	92145	174.1	174.2	6.785	6.919	5.089	1.357	28.95	
94000	92630	176.1	176.2	6.172	6.294	4.630	1.221	28.95	
94500	93116	178.0	178.1	5.621	5.731	4.216	1.099	28.94	
95000	93601	179.9	180.1	5.124 - 4	5.225 - 3	3.843 - 4	9.913 - 7	28.94	
95500	94086	181.8	182.0	4.675	4.767	3.507	8.949	28.94	
96000	94572	183.7	183.9	4.270	4.354	3.205	8.087	28.93	
96500	95057	185.6	185.9	3.904	3.981	2.928	7.317	28.93	
97000	95542	187.6	187.8	3.573	3.643	2.680	6.626	28.92	
97500	96027	189.5	189.8	3.272	3.337	2.455	6.008	28.92	
98000	96512	191.4	191.7	3.000	3.059	2.250	5.452	28.92	
98500	96997	193.3	193.6	2.753	2.807	2.065	4.953	28.91	
99000	97482	195.2	195.6	2.528	2.578	1.896	4.504	28.91	
99500	97966	197.1	197.5	2.324	2.370	1.743	4.099	28.91	
100000	98451	199.0	199.5	2.138 - 4	2.180 - 3	1.604 - 4	3.734 - 7	28.90	
101000	99420	202.8	203.3	1.814	1.850	1.361	3.108	28.89	
102000	100389	206.6	207.2	1.544	1.574	1.153	2.596	28.88	
103000	101358	210.4	211.1	1.318	1.344	9.885 - 5	2.175	28.88	
104000	102326	214.2	215.0	1.125	1.151	8.465	1.829	28.87	
105000	103294	218.0	218.8	9.688 - 5	9.879 - 4	7.266	1.542	28.86	
106000	104261	221.8	222.7	8.341	8.505	6.256	1.305	28.85	
107000	105229	225.3	230.2	7.201	7.343	5.402	1.090	28.84	
108000	106196	248.4	249.6	6.274	6.398	4.706	8.759 - 8	28.83	
109000	107162	267.6	268.9	5.324	5.633	4.143	7.156	28.82	
110000	108129	286.7	288.2	4.906 - 5	5.005 - 4	3.680 - 5	5.930 - 8	28.82	
111000	109095	305.9	307.6	4.391	4.478	3.294	4.974	28.81	
112000	110061	325.0	326.9	3.957	4.035	2.968	4.218	28.80	
113000	111026	344.0	346.2	3.588	3.658	2.691	3.611	28.79	
114000	111991	363.1	365.3	3.270	3.335	2.453	3.117	28.78	
115000	112956	382.1	384.8	2.995	3.054	2.246	2.712	28.77	
116000	113921	401.2	404.1	2.755	2.809	2.066	2.375	28.76	
117000	114885	420.2	423.4	2.544	2.594	1.908	2.095	28.75	
118000	115849	439.1	442.6	2.358	2.404	1.768	1.856	28.74	
119000	116813	458.1	461.9	2.192	2.235	1.644	1.655	28.73	
120000	117777	477.0	481.2	2.044 - 5	2.085 - 4	1.533 - 5	1.480 - 8	28.71	
121000	118740	495.9	500.5	1.912	1.949	1.434	1.331	28.70	
122000	119702	514.8	519.7	1.792	1.828	1.344	1.201	28.69	
123000	120665	533.7	539.0	1.684	1.717	1.265	1.089	28.68	
124000	121627	552.5	558.2	1.586	1.618	1.190	9.900 - 9	28.67	
125000	122589	571.3	577.4	1.497	1.527	1.123	9.052	28.66	
126000	123551	590.1	596.7	1.416	1.444	1.062	8.265	28.64	
127000	124512	608.8	615.9	1.341	1.367	1.006	7.585	28.63	
128000	125473	627.5	635.1	1.272	1.297	9.444 - 6	6.979	28.62	
129000	126434	646.2	654.3	1.209	1.233	9.070	6.458	28.61	
130000	127395	664.9	673.6	1.151 - 5	1.174 - 4	8.632 - 6	5.955 - 9	28.59	
131000	128355	683.5	692.8	1.097	1.119	8.228	5.516	28.58	
132000	129315	702.2	712.0	1.047	1.066	7.832	5.125	28.57	
133000	130274	720.7	731.1	1.000	1.020	7.505	4.787	28.55	
134000	131233	739.3	750.3	9.571 - 6	9.760 - 5	7.179	4.444	28.54	
135000	132192	757.8	769.5	9.167	9.348	6.876	4.150	28.53	
136000	133151	776.3	788.7	8.790	8.963	6.593	3.885	28.51	
137000	134109	794.7	807.8	8.436	8.605	6.328	3.638	28.50	
138000	135068	813.1	827.0	8.105	8.265	6.079	3.414	28.48	
139000	136025	831.5	846.2	7.794	7.948	5.846	3.209	28.46	

ALTITUDE		TEMPERATURE		PRESSURE			DENSITY		MOLECULAR WEIGHT	
Z, m	H, m'	T, °K	T _M , °K	P, mb	P, kg f m ⁻²	P, mm Hg	ρ, kg m ⁻³			
140000	136983	849.9	865.3	7.502 - 6	7.650 - 5	5.627 - 6	3.020 - 9		28.45	
141000	137940	868.2	884.5	7.227	7.369	5.420	2.847		28.43	
142000	138897	886.4	903.6	6.967	7.104	5.226	2.686		28.42	
143000	139854	904.7	922.7	6.722	6.855	5.042	2.538		28.40	
144000	140810	922.9	941.9	6.491	6.619	4.868	2.401		28.38	
145000	141766	941.0	961.0	6.272	6.395	4.704	2.274		28.36	
146000	142722	959.1	980.1	6.064	6.184	4.548	2.156		28.35	
147000	143677	977.2	999.2	5.867	5.983	4.401	2.046		28.33	
148000	144632	995.2	1018.	5.681	5.793	4.261	1.943		28.31	
149000	145587	1013.	1037.	5.503	5.612	4.128	1.848		28.29	
150000	146542	1031.	1056.	5.334 - 6	5.439 - 5	4.001 - 6	1.759 - 9		28.27	
151000	147496	1049.	1076.	5.174	5.276	3.881	1.676		28.25	
152000	148450	1067.	1095.	5.021	5.120	3.766	1.598		28.23	
153000	149404	1085.	1114.	4.875	4.971	3.655	1.525		28.21	
154000	150357	1102.	1133.	4.735	4.829	3.552	1.456		28.19	
155000	151310	1120.	1152.	4.602	4.693	3.452	1.392		28.16	
156000	152263	1138.	1171.	4.475	4.563	3.356	1.331		28.14	
157000	153216	1155.	1190.	4.353	4.439	3.265	1.274		28.12	
158000	154168	1173.	1209.	4.237	4.320	3.178	1.221		28.09	
159000	155120	1190.	1228.	4.125	4.207	3.094	1.170		28.07	
160000	156071	1207.	1247.	4.018 - 6	4.097 - 5	3.014 - 6	1.123 - 9		28.04	
161000	157023	1225.	1266.	3.916	3.993	2.937	1.077		28.02	
162000	157974	1242.	1285.	3.817	3.892	2.863	1.035		27.99	
163000	158924	1259.	1304.	3.723	3.796	2.792	9.944 -10		27.96	
164000	159875	1276.	1323.	3.632	3.703	2.724	9.562		27.94	
165000	160825	1285.	1334.	3.544	3.614	2.658	9.256		27.91	
166000	161775	1293.	1345.	3.459	3.527	2.595	8.971		27.88	
167000	162725	1301.	1355.	3.377	3.443	2.533	8.696		27.85	
168000	163674	1308.	1362.	3.297	3.362	2.473	8.431		27.82	
169000	164623	1316.	1372.	3.220	3.283	2.415	8.177		27.79	
170000	165572	1323.	1381.	3.145 - 6	3.207 - 5	2.359 - 6	7.932 -10		27.75	
171000	166520	1331.	1391.	3.072	3.133	2.304	7.696		27.72	
172000	167468	1338.	1400.	3.002	3.061	2.252	7.468		27.68	
173000	168416	1346.	1410.	2.933	2.991	2.200	7.249		27.65	
174000	169364	1353.	1419.	2.867	2.924	2.150	7.038		27.61	
175000	170311	1359.	1427.	2.803	2.858	2.102	6.841		27.57	
176000	171258	1361.	1432.	2.740	2.794	2.055	6.666		27.53	
177000	172205	1364.	1437.	2.679	2.732	2.009	6.496		27.49	
178000	173151	1366.	1441.	2.619	2.671	1.965	6.331		27.45	
179000	174097	1368.	1446.	2.561	2.612	1.921	6.170		27.41	
180000	175043	1371.	1451.	2.505 - 6	2.554 - 5	1.879 - 6	6.015 -10		27.36	
181000	175988	1373.	1456.	2.450	2.498	1.837	5.863		27.32	
182000	176934	1375.	1460.	2.396	2.443	1.797	5.716		27.27	
183000	177879	1377.	1465.	2.344	2.390	1.758	5.573		27.22	
184000	178823	1379.	1470.	2.293	2.338	1.720	5.435		27.17	
185000	179768	1381.	1474.	2.243	2.287	1.682	5.300		27.12	
186000	180712	1382.	1479.	2.195	2.238	1.646	5.169		27.07	
187000	181656	1384.	1484.	2.147	2.190	1.611	5.041		27.01	
188000	182599	1385.	1489.	2.101	2.143	1.576	4.918		26.96	
189000	183542	1387.	1493.	2.056	2.097	1.542	4.797		26.91	
190000	184485	1389.	1498.	2.013 - 6	2.052 - 5	1.510 - 6	4.680 -10		26.85	
191000	185428	1390.	1503.	1.970	2.009	1.477	4.566		26.80	
192000	186370	1392.	1508.	1.928	1.966	1.446	4.456		26.75	
193000	187312	1393.	1512.	1.887	1.925	1.416	4.348		26.69	
194000	188254	1395.	1517.	1.846	1.884	1.386	4.244		26.64	
195000	189196	1397.	1522.	1.809	1.845	1.357	4.142		26.59	
196000	190137	1398.	1526.	1.771	1.806	1.329	4.043		26.53	
197000	191078	1400.	1531.	1.734	1.769	1.301	3.947		26.48	
198000	192018	1401.	1536.	1.698	1.732	1.274	3.853		26.43	
199000	192959	1403.	1540.	1.663	1.696	1.248	3.762		26.37	

ALTITUDE		TEMPERATURE		PRESSURE		DENSITY		MOLECULAR WEIGHT	
Z, m	H, m'	T, °K	T _M , °K	P, mb	P, kgf m ⁻²	P, mm Hg	ρ, kg m ⁻³	M	
200000	193899	1404.	1545.	1.629 - 6	1.661 - 5	1.222 - 6	3.673 -10	26.32	
201000	194839	1405.	1550.	1.596	1.627	1.197	3.587	26.27	
202000	195778	1407.	1555.	1.563	1.594	1.172	3.503	26.22	
203000	196717	1408.	1559.	1.531	1.561	1.148	3.421	26.16	
204000	197656	1410.	1564.	1.500	1.530	1.125	3.341	26.11	
205000	198595	1411.	1569.	1.470	1.499	1.102	3.264	26.06	
206000	199533	1413.	1573.	1.440	1.468	1.080	3.188	26.01	
207000	200471	1413.	1577.	1.411	1.439	1.058	3.116	25.95	
208000	201409	1413.	1581.	1.383	1.410	1.037	3.047	25.90	
209000	202346	1413.	1584.	1.355	1.382	1.016	2.980	25.85	
210000	203284	1414.	1587.	1.328 - 6	1.354 - 5	9.959 - 7	2.914 -10	25.80	
211000	204220	1414.	1590.	1.301	1.327	9.760	2.850	25.75	
212000	205157	1414.	1594.	1.275	1.301	9.566	2.788	25.70	
213000	206093	1414.	1597.	1.250	1.273	9.376	2.727	25.64	
214000	207030	1414.	1600.	1.225	1.249	9.191	2.668	25.59	
215000	207965	1414.	1604.	1.201	1.225	9.009	2.610	25.54	
216000	208901	1414.	1607.	1.177	1.201	8.831	2.553	25.49	
217000	209836	1414.	1610.	1.154	1.177	8.658	2.498	25.44	
218000	210771	1414.	1613.	1.132	1.154	8.488	2.444	25.39	
219000	211706	1414.	1617.	1.109	1.131	8.322	2.391	25.34	
220000	212640	1414.	1620.	1.088 - 6	1.109 - 5	8.159 - 7	2.339 -10	25.29	
221000	213574	1414.	1623.	1.067	1.088	8.000	2.289	25.24	
222000	214508	1414.	1626.	1.046	1.066	7.845	2.240	25.19	
223000	215441	1414.	1630.	1.026	1.046	7.692	2.192	25.14	
224000	216374	1414.	1633.	1.006	1.026	7.543	2.146	25.09	
225000	217307	1414.	1636.	9.863 - 7	1.006	7.398	2.100	25.04	
226000	218240	1414.	1639.	9.673	9.864 - 6	7.255	2.053	24.99	
227000	219172	1414.	1643.	9.487	9.674	7.116	2.012	24.94	
228000	220104	1415.	1646.	9.305	9.488	6.979	1.969	24.89	
229000	221036	1415.	1649.	9.127	9.307	6.846	1.928	24.84	
230000	221968	1415.	1653.	8.953 - 7	9.129 - 6	6.715 - 7	1.887 -10	24.79	
231000	222899	1415.	1656.	8.782	8.955	6.587	1.848	24.75	
232000	223830	1415.	1659.	8.615	8.785	6.462	1.809	24.70	
233000	224761	1415.	1662.	8.448	8.619	6.339	1.771	24.65	
234000	225691	1415.	1666.	8.282	8.455	6.219	1.734	24.60	
235000	226621	1415.	1669.	8.135	8.296	6.102	1.698	24.56	
236000	227551	1415.	1672.	7.982	8.140	5.987	1.663	24.51	
237000	228480	1415.	1675.	7.832	7.987	5.875	1.629	24.46	
238000	229410	1415.	1679.	7.685	7.837	5.764	1.593	24.41	
239000	230339	1415.	1682.	7.541	7.690	5.657	1.562	24.37	
240000	231267	1415.	1685.	7.401 - 7	7.547 - 6	5.551 - 7	1.530 -10	24.32	
241000	232196	1415.	1688.	7.263	7.406	5.448	1.499	24.27	
242000	233124	1415.	1692.	7.128	7.268	5.346	1.468	24.23	
243000	234052	1415.	1695.	6.996	7.133	5.247	1.438	24.18	
244000	234979	1415.	1698.	6.866	7.001	5.150	1.409	24.14	
245000	235906	1415.	1701.	6.739	6.872	5.053	1.380	24.09	
246000	236833	1415.	1705.	6.615	6.746	4.962	1.352	24.05	
247000	237760	1415.	1708.	6.494	6.622	4.871	1.325	24.00	
248000	238687	1415.	1711.	6.374	6.500	4.781	1.298	23.96	
249000	239613	1415.	1714.	6.258	6.381	4.694	1.272	23.91	
250000	240539	1415.	1718.	6.143 - 7	6.265 - 6	4.608 - 7	1.246 -10	23.87	
251000	241464	1415.	1721.	6.031	6.150	4.524	1.221	23.82	
252000	242390	1415.	1724.	5.922	6.038	4.442	1.197	23.78	
253000	243315	1415.	1727.	5.814	5.929	4.361	1.173	23.74	
254000	244239	1415.	1730.	5.709	5.822	4.282	1.149	23.69	
255000	245164	1415.	1734.	5.606	5.716	4.205	1.126	23.65	
256000	246088	1416.	1737.	5.505	5.613	4.129	1.104	23.61	
257000	247012	1416.	1740.	5.406	5.512	4.055	1.082	23.56	
258000	247936	1416.	1743.	5.309	5.413	3.982	1.061	23.52	
259000	248859	1416.	1747.	5.214	5.316	3.910	1.040	23.48	

ALTITUDE		TEMPERATURE		PRESSURE		DENSITY		MOLECULAR WEIGHT	
Z, m	H, m'	T, °K	T _M , °K	P, mb	P, kg m ⁻²	P, mm Hg	ρ, kg m ⁻³	M	
260000	249782	1416.	1750.	5.120 - 7	5.221 - 6	3.841 - 7	1.019 -10	23.44	
261000	250705	1416.	1753.	5.029	5.128	3.772	9.994 -11	23.39	
262000	251627	1416.	1756.	4.939	5.037	3.705	9.798	23.35	
263000	252550	1416.	1760.	4.852	4.947	3.639	9.606	23.31	
264000	253472	1416.	1763.	4.766	4.860	3.575	9.419	23.27	
265000	254393	1416.	1766.	4.681	4.774	3.511	9.235	23.23	
266000	255315	1416.	1769.	4.599	4.689	3.449	9.055	23.19	
267000	256236	1417.	1772.	4.518	4.607	3.389	8.880	23.15	
268000	257157	1417.	1776.	4.438	4.526	3.329	8.708	23.11	
269000	258077	1417.	1779.	4.361	4.447	3.271	8.540	23.07	
270000	258998	1417.	1782.	4.284 - 7	4.369 - 6	3.213 - 7	8.375 -11	23.03	
271000	259918	1417.	1785.	4.209	4.292	3.157	8.214	22.99	
272000	260837	1417.	1789.	4.136	4.218	3.102	8.056	22.95	
273000	261757	1417.	1792.	4.064	4.144	3.048	7.902	22.91	
274000	262676	1417.	1795.	3.994	4.072	2.995	7.751	22.87	
275000	263595	1418.	1798.	3.924	4.002	2.944	7.603	22.83	
276000	264513	1418.	1801.	3.857	3.933	2.893	7.458	22.80	
277000	265432	1418.	1805.	3.790	3.865	2.843	7.316	22.76	
278000	266350	1418.	1808.	3.725	3.798	2.794	7.178	22.72	
279000	267268	1418.	1811.	3.661	3.733	2.746	7.042	22.68	
280000	268185	1418.	1814.	3.598 - 7	3.669 - 6	2.699 - 7	6.909 -11	22.65	
281000	269102	1419.	1818.	3.536	3.606	2.653	6.779	22.61	
282000	270019	1419.	1821.	3.476	3.545	2.607	6.651	22.57	
283000	270936	1419.	1824.	3.417	3.484	2.563	6.526	22.53	
284000	271853	1419.	1827.	3.359	3.425	2.519	6.404	22.50	
285000	272769	1419.	1830.	3.302	3.367	2.477	6.284	22.46	
286000	273685	1420.	1834.	3.246	3.310	2.435	6.167	22.43	
287000	274600	1420.	1837.	3.191	3.254	2.393	6.052	22.39	
288000	275515	1420.	1840.	3.137	3.199	2.353	5.940	22.35	
289000	276430	1420.	1843.	3.084	3.145	2.313	5.830	22.32	
290000	277345	1420.	1846.	3.033 - 7	3.092 - 6	2.275 - 7	5.722 -11	22.28	
291000	278260	1421.	1850.	2.982	3.040	2.236	5.616	22.25	
292000	279174	1421.	1853.	2.932	2.990	2.199	5.513	22.21	
293000	280088	1421.	1856.	2.883	2.940	2.162	5.411	22.18	
294000	281001	1421.	1859.	2.835	2.891	2.126	5.312	22.15	
295000	281915	1422.	1862.	2.788	2.843	2.091	5.215	22.11	
296000	282829	1422.	1866.	2.741	2.795	2.056	5.119	22.08	
297000	283741	1422.	1869.	2.696	2.749	2.022	5.026	22.05	
298000	284653	1423.	1872.	2.651	2.704	1.989	4.934	22.01	
299000	285566	1423.	1875.	2.608	2.659	1.956	4.845	21.98	
300000	286478	1423.	1878.	2.565 - 7	2.615 - 6	1.924 - 7	4.757 -11	21.95	
302000	288301	1424.	1885.	2.481	2.530	1.861	4.586	21.88	
304000	290123	1424.	1891.	2.401	2.448	1.801	4.423	21.82	
306000	291944	1425.	1897.	2.323	2.369	1.743	4.265	21.75	
308000	293764	1426.	1904.	2.248	2.293	1.686	4.114	21.69	
310000	295583	1426.	1910.	2.176	2.219	1.632	3.969	21.63	
312000	297400	1427.	1917.	2.107	2.148	1.580	3.830	21.57	
314000	299217	1428.	1923.	2.040	2.080	1.530	3.696	21.51	
316000	301033	1429.	1929.	1.975	2.014	1.481	3.567	21.45	
318000	302847	1429.	1936.	1.913	1.951	1.435	3.443	21.39	
320000	304661	1430.	1942.	1.853 - 7	1.889 - 6	1.390 - 7	3.324 -11	21.33	
322000	306473	1431.	1948.	1.795	1.830	1.346	3.209	21.28	
324000	308284	1432.	1955.	1.739	1.773	1.304	3.099	21.22	
326000	310094	1433.	1961.	1.685	1.718	1.263	2.993	21.16	
328000	311903	1434.	1967.	1.632	1.665	1.224	2.891	21.11	
330000	313711	1435.	1974.	1.582	1.613	1.187	2.792	21.06	
332000	315518	1436.	1980.	1.533	1.564	1.150	2.698	21.00	
334000	317324	1437.	1986.	1.486	1.516	1.115	2.607	20.95	
336000	319129	1438.	1993.	1.441	1.469	1.081	2.519	20.90	
338000	320932	1439.	1999.	1.397	1.425	1.048	2.435	20.85	

ALTITUDE		TEMPERATURE		PRESSURE		DENSITY		MOLECULAR WEIGHT	
Z, m	H, m'	T, °K	T _M , °K	P, mb	P, kg f m ⁻²	P, mm Hg	ρ, kg m ⁻³	M	
340000	322735	1440.	2005.	1.355 - 7	1.382 - 6	1.016 - 7	2.354 -11	20.80	
342000	324536	1441.	2012.	1.314	1.340	9.856 - 8	2.276	20.75	
344000	326337	1442.	2018.	1.274	1.300	9.559	2.200	20.70	
346000	328136	1443.	2024.	1.236	1.261	9.273	2.128	20.65	
348000	329934	1444.	2030.	1.199	1.223	8.996	2.058	20.60	
350000	331731	1445.	2037.	1.164	1.187	8.729	1.991	20.55	
352000	333527	1446.	2043.	1.129	1.151	8.470	1.926	20.51	
354000	335322	1448.	2049.	1.096	1.117	8.220	1.863	20.46	
356000	337116	1449.	2056.	1.064	1.085	7.978	1.803	20.42	
358000	338909	1450.	2062.	1.032	1.053	7.744	1.745	20.37	
360000	340701	1451.	2068.	1.002 - 7	1.022 - 6	7.518 - 8	1.688 -11	20.33	
362000	342492	1453.	2074.	9.731 - 8	9.923 - 7	7.299	1.634	20.28	
364000	344282	1454.	2081.	9.449	9.635	7.087	1.582	20.24	
366000	346070	1455.	2087.	9.176	9.357	6.883	1.532	20.20	
368000	347858	1457.	2093.	8.912	9.087	6.684	1.483	20.16	
370000	349644	1458.	2099.	8.656	8.827	6.492	1.436	20.12	
372000	351430	1459.	2106.	8.408	8.574	6.307	1.391	20.08	
374000	353214	1461.	2112.	8.169	8.330	6.127	1.348	20.03	
376000	354997	1462.	2118.	7.937	8.093	5.953	1.305	20.00	
378000	356780	1464.	2124.	7.712	7.864	5.785	1.265	19.96	
380000	358561	1465.	2131.	7.495 - 8	7.643 - 7	5.622 - 8	1.225 -11	19.92	
382000	360341	1467.	2137.	7.284	7.428	5.464	1.188	19.88	
384000	362120	1468.	2143.	7.080	7.220	5.311	1.151	19.84	
386000	363898	1469.	2149.	6.883	7.018	5.162	1.116	19.80	
388000	365675	1471.	2156.	6.691	6.823	5.019	1.081	19.77	
390000	367451	1473.	2162.	6.506	6.634	4.880	1.048	19.73	
392000	369226	1474.	2168.	6.326	6.451	4.745	1.017	19.70	
394000	371000	1476.	2174.	6.152	6.273	4.614	9.858 -12	19.66	
396000	372772	1477.	2180.	5.983	6.101	4.488	9.560	19.63	
398000	374544	1479.	2187.	5.820	5.934	4.365	9.272	19.59	
400000	376315	1480.	2193.	5.661 - 8	5.773 - 7	4.246 - 8	8.994 -12	19.56	
402000	378084	1482.	2199.	5.507	5.616	4.131	8.725	19.52	
404000	379853	1484.	2205.	5.358	5.464	4.019	8.465	19.49	
406000	381621	1485.	2211.	5.214	5.316	3.911	8.214	19.46	
408000	383387	1487.	2218.	5.073	5.173	3.805	7.971	19.42	
410000	385152	1489.	2224.	4.938	5.035	3.703	7.736	19.39	
412000	386917	1490.	2230.	4.806	4.900	3.605	7.508	19.36	
414000	388680	1492.	2236.	4.678	4.770	3.509	7.288	19.33	
416000	390442	1494.	2242.	4.554	4.643	3.415	7.073	19.30	
418000	392204	1496.	2248.	4.433	4.521	3.325	6.869	19.27	
420000	393964	1497.	2255.	4.316 - 8	4.401 - 7	3.238 - 8	6.670 -12	19.24	
422000	395723	1499.	2261.	4.203	4.286	3.152	6.477	19.21	
424000	397481	1501.	2267.	4.093	4.174	3.070	6.290	19.18	
426000	399238	1503.	2273.	3.986	4.065	2.990	6.110	19.15	
428000	400994	1505.	2279.	3.882	3.959	2.912	5.935	19.12	
430000	402749	1506.	2285.	3.782	3.856	2.837	5.765	19.09	
432000	404503	1508.	2291.	3.684	3.757	2.763	5.601	19.07	
434000	406256	1510.	2298.	3.589	3.660	2.692	5.442	19.04	
436000	408008	1512.	2304.	3.497	3.566	2.625	5.288	19.01	
438000	409759	1514.	2310.	3.407	3.475	2.556	5.139	18.98	
440000	411509	1516.	2316.	3.320 - 8	3.386 - 7	2.491 - 8	4.995 -12	18.96	
442000	413258	1518.	2322.	3.236	3.300	2.427	4.835	18.93	
444000	415006	1519.	2328.	3.154	3.216	2.366	4.719	18.90	
446000	416752	1521.	2334.	3.074	3.135	2.306	4.588	18.88	
448000	418498	1523.	2340.	2.997	3.056	2.248	4.461	18.85	
450000	420243	1525.	2347.	2.921	2.979	2.191	4.338	18.83	
452000	421987	1527.	2353.	2.848	2.905	2.136	4.218	18.80	
454000	423729	1529.	2359.	2.777	2.832	2.083	4.102	18.78	
456000	425471	1531.	2365.	2.708	2.762	2.031	3.990	18.75	
458000	427211	1533.	2371.	2.641	2.693	1.981	3.881	18.73	

ALTITUDE		TEMPERATURE		PRESSURE			DENSITY	MOLECULAR WEIGHT	
Z, m	H, m'	T, °K	T _M , °K	P, mb	P, kg m ⁻²	P, mm Hg	ρ, kg m ⁻³	M	
460000	428951	1535.	2377.	2.576 - 8	2.626 - 7	1.932 - 8	3.775 -12	18.71	
462000	430690	1537.	2383.	2.512	2.562	1.884	3.673	18.68	
464000	432427	1539.	2389.	2.450	2.499	1.833	3.573	18.66	
466000	434164	1541.	2395.	2.390	2.436	1.793	3.477	18.64	
468000	435899	1543.	2401.	2.332	2.378	1.749	3.383	18.61	
470000	437634	1545.	2407.	2.275	2.320	1.707	3.293	18.59	
472000	439367	1547.	2413.	2.220	2.264	1.665	3.205	18.57	
474000	441100	1549.	2420.	2.166	2.209	1.625	3.119	18.55	
476000	442831	1551.	2426.	2.114	2.156	1.586	3.036	18.52	
478000	444562	1553.	2432.	2.063	2.104	1.548	2.956	18.50	
480000	446291	1555.	2438.	2.014 - 8	2.053 - 7	1.510 - 8	2.878 -12	18.48	
482000	448019	1557.	2444.	1.966	2.004	1.474	2.802	18.46	
484000	449747	1560.	2450.	1.919	1.957	1.439	2.729	18.44	
486000	451473	1562.	2456.	1.873	1.910	1.405	2.657	18.42	
488000	453199	1564.	2462.	1.829	1.865	1.372	2.588	18.40	
490000	454923	1566.	2468.	1.786	1.821	1.339	2.521	18.38	
492000	456646	1568.	2474.	1.744	1.778	1.308	2.455	18.36	
494000	458369	1570.	2480.	1.703	1.736	1.277	2.392	18.34	
496000	460090	1572.	2486.	1.663	1.696	1.247	2.330	18.32	
498000	461810	1574.	2492.	1.624	1.656	1.218	2.270	18.30	
500000	463530	1576.	2498.	1.586 - 8	1.617 - 7	1.190 - 8	2.212 -12	18.28	
502000	465248	1579.	2504.	1.549	1.580	1.162	2.156	18.26	
504000	466965	1581.	2510.	1.514	1.543	1.135	2.101	18.24	
506000	468682	1583.	2516.	1.479	1.508	1.109	2.047	18.22	
508000	470397	1585.	2522.	1.445	1.473	1.084	1.996	18.21	
510000	472111	1587.	2528.	1.412	1.439	1.059	1.945	18.19	
512000	473825	1590.	2534.	1.379	1.406	1.035	1.896	18.17	
514000	475537	1592.	2540.	1.348	1.374	1.011	1.849	18.15	
516000	477248	1594.	2546.	1.317	1.343	9.880 - 9	1.802	18.13	
518000	478959	1596.	2552.	1.287	1.313	9.656	1.757	18.12	
520000	480668	1598.	2558.	1.258 - 8	1.283 - 7	9.438 - 9	1.714 -12	18.10	
522000	482376	1601.	2564.	1.230	1.254	9.225	1.671	18.08	
524000	484084	1603.	2570.	1.202	1.226	9.018	1.630	18.06	
526000	485790	1605.	2576.	1.175	1.199	8.816	1.590	18.05	
528000	487495	1607.	2582.	1.149	1.172	8.619	1.550	18.03	
530000	489200	1609.	2588.	1.123	1.146	8.427	1.512	18.01	
532000	490903	1612.	2594.	1.099	1.120	8.240	1.475	18.00	
534000	492606	1614.	2600.	1.074	1.095	8.057	1.439	17.98	
536000	494307	1616.	2606.	1.050	1.071	7.879	1.404	17.97	
538000	496007	1618.	2612.	1.027	1.048	7.706	1.370	17.95	
540000	497707	1621.	2618.	1.005 - 8	1.025 - 7	7.536 - 9	1.337 -12	17.93	
542000	499405	1623.	2624.	9.828 - 9	1.002	7.371	1.305	17.92	
544000	501103	1625.	2630.	9.613	9.803 - 8	7.210	1.274	17.90	
546000	502799	1628.	2635.	9.404	9.589	7.053	1.243	17.89	
548000	504495	1630.	2641.	9.200	9.381	6.900	1.213	17.87	
550000	506189	1632.	2647.	9.000	9.178	6.751	1.184	17.86	
552000	507883	1634.	2653.	8.806	8.980	6.605	1.156	17.84	
554000	509575	1637.	2659.	8.616	8.786	6.463	1.129	17.83	
556000	511267	1639.	2665.	8.431	8.598	6.324	1.102	17.81	
558000	512957	1641.	2671.	8.251	8.413	6.189	1.076	17.80	
560000	514647	1644.	2677.	8.075 - 9	8.234 - 8	6.056 - 9	1.051 -12	17.78	
562000	516336	1646.	2683.	7.903	8.058	5.927	1.026	17.77	
564000	518023	1648.	2689.	7.735	7.887	5.802	1.002	17.76	
566000	519710	1651.	2695.	7.571	7.720	5.679	9.788 -13	17.74	
568000	521396	1653.	2701.	7.411	7.557	5.559	9.561	17.73	
570000	523080	1655.	2706.	7.255	7.398	5.442	9.339	17.72	
572000	524764	1658.	2712.	7.103	7.243	5.327	9.123	17.70	
574000	526447	1660.	2718.	6.954	7.091	5.216	8.912	17.69	
576000	528129	1662.	2724.	6.808	6.943	5.107	8.707	17.67	
578000	529810	1665.	2730.	6.667	6.798	5.000	8.507	17.66	

ALTITUDE		TEMPERATURE		PRESSURE			DENSITY	MOLECULAR WEIGHT	
Z, m	H, m'	T, °K	T _M , °K	P, mb	P, kgf m ⁻²	P, mm Hg	ρ, kg m ⁻³	M	
520000	531489	1667.	2736.	6.528 - 9	6.657 - 8	4.896 - 9	8.313 -13	17.65	
522000	533168	1669.	2742.	6.393	6.519	4.795	8.123	17.64	
524000	534846	1672.	2748.	6.261	6.384	4.696	7.938	17.62	
526000	536523	1674.	2753.	6.132	6.252	4.599	7.758	17.61	
528000	538199	1676.	2759.	6.005	6.124	4.504	7.582	17.60	
530000	539874	1679.	2765.	5.882	5.998	4.412	7.411	17.58	
532000	541548	1681.	2771.	5.762	5.876	4.322	7.244	17.57	
534000	543221	1683.	2777.	5.645	5.756	4.234	7.081	17.56	
536000	544893	1686.	2783.	5.530	5.639	4.148	6.923	17.55	
538000	546565	1688.	2789.	5.418	5.524	4.063	6.768	17.54	
600000	548235	1691.	2794.	5.308 - 9	5.413 - 8	3.981 - 9	6.617 -13	17.52	
602000	549904	1693.	2800.	5.201	5.303	3.901	6.470	17.51	
604000	551572	1695.	2806.	5.096	5.197	3.822	6.327	17.50	
606000	553240	1698.	2812.	4.994	5.092	3.746	6.187	17.49	
608000	554906	1700.	2818.	4.894	4.990	3.671	6.051	17.48	
610000	556571	1703.	2824.	4.796	4.891	3.597	5.917	17.47	
612000	558236	1705.	2829.	4.701	4.793	3.526	5.788	17.45	
614000	559899	1707.	2835.	4.607	4.698	3.456	5.661	17.44	
616000	561562	1710.	2841.	4.516	4.605	3.387	5.537	17.43	
618000	563224	1712.	2847.	4.427	4.514	3.320	5.417	17.42	
620000	564884	1715.	2853.	4.339 - 9	4.425 - 8	3.255 - 9	5.299 -13	17.41	
622000	566544	1717.	2859.	4.254	4.338	3.191	5.185	17.40	
624000	568203	1719.	2864.	4.171	4.253	3.128	5.073	17.39	
626000	569860	1722.	2870.	4.089	4.170	3.067	4.963	17.38	
628000	571517	1724.	2876.	4.009	4.088	3.007	4.857	17.37	
630000	573173	1727.	2882.	3.931	4.009	2.949	4.753	17.36	
632000	574828	1729.	2888.	3.855	3.931	2.891	4.651	17.34	
634000	576482	1731.	2893.	3.780	3.855	2.836	4.552	17.33	
636000	578135	1734.	2899.	3.707	3.780	2.781	4.455	17.32	
638000	579787	1736.	2905.	3.636	3.708	2.727	4.361	17.31	
640000	581438	1739.	2911.	3.566 - 9	3.636 - 8	2.675 - 9	4.268 -13	17.30	
642000	583088	1741.	2916.	3.498	3.567	2.624	4.178	17.29	
644000	584738	1744.	2922.	3.431	3.499	2.573	4.090	17.28	
646000	586386	1746.	2928.	3.365	3.432	2.524	4.004	17.27	
648000	588033	1749.	2934.	3.301	3.367	2.476	3.920	17.26	
650000	589680	1751.	2940.	3.239	3.303	2.429	3.839	17.25	
652000	591325	1753.	2945.	3.178	3.240	2.383	3.759	17.24	
654000	592970	1756.	2951.	3.118	3.179	2.338	3.680	17.23	
656000	594613	1758.	2957.	3.059	3.119	2.294	3.604	17.22	
658000	596256	1761.	2963.	3.001	3.061	2.251	3.530	17.22	
660000	597898	1763.	2968.	2.945 - 9	3.003 - 8	2.209 - 9	3.457 -13	17.21	
662000	599538	1766.	2974.	2.890	2.947	2.168	3.386	17.20	
664000	601178	1768.	2980.	2.836	2.892	2.127	3.316	17.19	
666000	602817	1771.	2986.	2.783	2.838	2.088	3.248	17.18	
668000	604455	1773.	2991.	2.732	2.786	2.049	3.182	17.17	
670000	606092	1775.	2997.	2.681	2.734	2.011	3.117	17.16	
672000	607728	1778.	3003.	2.632	2.684	1.974	3.053	17.15	
674000	609363	1780.	3008.	2.583	2.634	1.938	2.992	17.14	
676000	610998	1783.	3014.	2.536	2.586	1.902	2.931	17.13	
678000	612631	1785.	3020.	2.489	2.538	1.867	2.872	17.12	
680000	614263	1788.	3026.	2.444 - 9	2.492 - 8	1.833 - 9	2.814 -13	17.12	
682000	615895	1790.	3031.	2.399	2.447	1.800	2.758	17.11	
684000	617525	1793.	3037.	2.356	2.402	1.767	2.702	17.10	
686000	619155	1795.	3043.	2.313	2.359	1.735	2.648	17.09	
688000	620784	1798.	3048.	2.271	2.316	1.703	2.595	17.08	
690000	622411	1800.	3054.	2.230	2.274	1.673	2.544	17.07	
692000	624038	1803.	3060.	2.190	2.233	1.643	2.493	17.06	
694000	625664	1805.	3065.	2.150	2.193	1.613	2.444	17.06	
696000	627289	1808.	3071.	2.112	2.154	1.584	2.396	17.05	
698000	628913	1810.	3077.	2.074	2.115	1.556	2.349	17.04	
700000	630536	1812.	3083.	2.037 - 9	2.077 - 8	1.528 - 9	2.302 -13	17.03	

TABLE IB

**ATMOSPHERIC PROPERTIES AS A FUNCTION OF ALTITUDE,
METRIC UNITS**

**Acceleration of Gravity, Specific Weight, Scale Height, Number Density,
Particle Speed, Collision Frequency, and Mean Free Path**

NOTE: A one- or two-digit number (preceded by a plus or minus sign) following the initial entry of each block indicates the power of 10 by which that entry and each succeeding entry of that block should be multiplied. A change of power occurring within a block is indicated by a similar notation.

ALTITUDE		ACCEL. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLL. FREQ.	MEAN FREE PATH
Z, m	H, m'	g, m sec ⁻²	ω , kg/ m ⁻³	H _g , km	n, m ⁻³	\bar{V} , m sec ⁻¹	v, sec ⁻¹	L, m
- 5000	- 5004	9.8221	1.9326 + 0	9.3717	4.0127 +25	484.15	1.1499 +10	4.2103 - 8
- 4900	- 4904	9.8218	1.9175	9.3589	3.9815	483.66	1.1398	4.2433
- 4800	- 4804	9.8215	1.9009	9.3462	3.9471	483.17	1.1288	4.2802
- 4700	- 4705	9.8212	1.8844	9.3155	3.9130	482.67	1.1179	4.3176
- 4600	- 4605	9.8209	1.8680	9.2967	3.8791	482.18	1.1071	4.3553
- 4500	- 4505	9.8205	1.8517	9.2780	3.8454	481.69	1.0964	4.3954
- 4400	- 4405	9.8202	1.8356	9.2593	3.8120	481.19	1.0857	4.4320
- 4300	- 4305	9.8199	1.8195	9.2405	3.7788	480.70	1.0752	4.4709
- 4200	- 4205	9.8196	1.8036	9.2218	3.7458	480.20	1.0647	4.5103
- 4100	- 4105	9.8193	1.7877	9.2031	3.7130	479.71	1.0543	4.5522
- 4000	- 4005	9.8190	1.7720 + 0	9.1843	3.6804 +25	479.21	1.0439 +10	4.5904 - 8
- 3900	- 3902	9.8187	1.7564	9.1656	3.6481	478.72	1.0337	4.6311
- 3800	- 3802	9.8184	1.7409	9.1469	3.6160	478.22	1.0235	4.6722
- 3700	- 3702	9.8181	1.7254	9.1281	3.5841	477.72	1.0134	4.7138
- 3600	- 3602	9.8178	1.7101	9.1094	3.5524	477.22	1.0034	4.7559
- 3500	- 3502	9.8175	1.6949	9.0907	3.5209	476.72	9.9951 + 9	4.7984
- 3400	- 3402	9.8171	1.6798	9.0719	3.4897	476.22	9.8366	4.8414
- 3300	- 3302	9.8168	1.6648	9.0532	3.4586	475.73	9.7389	4.8848
- 3200	- 3202	9.8165	1.6499	9.0344	3.4278	475.23	9.6419	4.9287
- 3100	- 3102	9.8162	1.6352	9.0157	3.3972	474.72	9.5457	4.9732
- 3000	- 3001	9.8159	1.6205 + 0	8.9969	3.3668 +25	474.22	9.4503 + 9	5.0181 - 8
- 2900	- 2901	9.8156	1.6059	8.9782	3.3366	473.72	9.3556	5.0635
- 2800	- 2801	9.8153	1.5914	8.9595	3.3066	473.22	9.2617	5.1094
- 2700	- 2701	9.8150	1.5770	8.9407	3.2768	472.72	9.1685	5.1559
- 2600	- 2601	9.8147	1.5627	8.9220	3.2472	472.21	9.0761	5.2028
- 2500	- 2501	9.8144	1.5486	8.9032	3.2178	471.71	8.9844	5.2503
- 2400	- 2401	9.8141	1.5345	8.8845	3.1887	471.21	8.8935	5.2983
- 2300	- 2301	9.8138	1.5205	8.8657	3.1597	470.70	8.8033	5.3469
- 2200	- 2201	9.8134	1.5066	8.8470	3.1310	470.20	8.7138	5.3960
- 2100	- 2101	9.8131	1.4928	8.8282	3.1024	469.69	8.6250	5.4457
- 2000	- 2001	9.8128	1.4791 + 0	8.8095	3.0741 +25	469.18	8.5370 + 9	5.4959 - 8
- 1900	- 1901	9.8125	1.4655	8.7907	3.0459	468.68	8.4497	5.5467
- 1800	- 1801	9.8122	1.4520	8.7720	3.0179	468.17	8.3630	5.5981
- 1700	- 1700	9.8119	1.4386	8.7532	2.9902	467.66	8.2771	5.6500
- 1600	- 1600	9.8116	1.4253	8.7345	2.9626	467.15	8.1919	5.7026
- 1500	- 1500	9.8113	1.4121	8.7157	2.9352	466.64	8.1074	5.7558
- 1400	- 1400	9.8110	1.3990	8.6970	2.9081	466.13	8.0236	5.8096
- 1300	- 1300	9.8107	1.3860	8.6782	2.8811	465.62	7.9404	5.8640
- 1200	- 1200	9.8104	1.3730	8.6595	2.8543	465.11	7.8580	5.9190
- 1100	- 1100	9.8100	1.3602	8.6407	2.8277	464.60	7.7762	5.9747
- 1000	- 1000	9.8097	1.3475 + 0	8.6220	2.8013 +25	464.09	7.6951 + 9	6.0310 - 8
- 900	- 900	9.8094	1.3348	8.6032	2.7751	463.58	7.6147	6.0880
- 800	- 800	9.8091	1.3222	8.5845	2.7491	463.06	7.5349	6.1456
- 700	- 700	9.8088	1.3098	8.5657	2.7232	462.55	7.4558	6.2059
- 600	- 600	9.8085	1.2974	8.5470	2.6976	462.04	7.3774	6.2629
- 500	- 500	9.8082	1.2851	8.5282	2.6721	461.52	7.2996	6.3226
- 400	- 400	9.8079	1.2729	8.5094	2.6468	461.01	7.2225	6.3850
- 300	- 300	9.8076	1.2608	8.4907	2.6217	460.49	7.1460	6.4440
- 200	- 200	9.8073	1.2488	8.4719	2.5968	459.98	7.0702	6.5059
- 100	- 100	9.8070	1.2369	8.4532	2.5721	459.46	6.9950	6.5684
0	0	9.8067	1.2250 + 0	8.4344	2.5476 +25	458.94	6.9204 + 9	6.6317 - 8
100	100	9.8063	1.2133	8.4157	2.5232	458.42	6.8465	6.6958
200	200	9.8060	1.2016	8.3969	2.4990	457.91	6.7732	6.7606
300	300	9.8057	1.1900	8.3781	2.4750	457.39	6.7005	6.8262
400	400	9.8054	1.1785	8.3594	2.4512	456.87	6.6284	6.8925
500	500	9.8051	1.1671	8.3406	2.4275	456.35	6.5570	6.9597
600	600	9.8048	1.1558	8.3218	2.4040	455.83	6.4862	7.0277
700	700	9.8045	1.1445	8.3031	2.3807	455.30	6.4159	7.0965
800	800	9.8042	1.1334	8.2843	2.3576	454.78	6.3463	7.1661
900	900	9.8039	1.1223	8.2655	2.3346	454.26	6.2773	7.2366

ALTITUDE		ACCEL. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLL. FREQ.	MEAN FREE PATH
Z, m	H, m'	g, m sec ⁻²	ω , kg f m ⁻³	H _s , km	n, m ⁻³	\bar{V} , m sec ⁻¹	v, sec ⁻¹	L, m
1000	1000	9.8036	1.1113 + 0	8.2468	2.3118 +25	453.74	6.2089 + 9	7.3079 - 8
1100	1100	9.8033	1.1004	8.2280	2.2892	453.21	6.1410	7.3801
1200	1200	9.8029	1.0896	8.2092	2.2668	452.69	6.0738	7.4531
1300	1300	9.8026	1.0789	8.1905	2.2445	452.16	6.0071	7.5271
1400	1400	9.8023	1.0682	8.1717	2.2224	451.64	5.9411	7.6020
1500	1500	9.8020	1.0576	8.1529	2.2005	451.11	5.8756	7.6778
1600	1600	9.8017	1.0471	8.1342	2.1787	450.59	5.8106	7.7545
1700	1700	9.8014	1.0367	8.1154	2.1571	450.06	5.7463	7.8322
1800	1799	9.8011	1.0264	8.0966	2.1356	449.53	5.6825	7.9108
1900	1899	9.8008	1.0161	8.0779	2.1144	449.00	5.6193	7.9904
2000	1999	9.8005	1.0059 + 0	8.0591	2.0933 +25	448.47	5.5566 + 9	8.0710 - 8
2100	2099	9.8002	9.9583 - 1	8.0403	2.0723	447.94	5.4945	8.1526
2200	2199	9.7999	9.8581	8.0215	2.0515	447.41	5.4329	8.2352
2300	2299	9.7996	9.7586	8.0028	2.0309	446.88	5.3719	8.3189
2400	2399	9.7993	9.6600	7.9840	2.0104	446.35	5.3115	8.4036
2500	2499	9.7989	9.5621	7.9652	1.9901	445.82	5.2515	8.4893
2600	2599	9.7986	9.4650	7.9465	1.9700	445.29	5.1921	8.5762
2700	2699	9.7983	9.3686	7.9277	1.9500	444.75	5.1333	8.6641
2800	2799	9.7980	9.2730	7.9089	1.9301	444.22	5.0749	8.7532
2900	2899	9.7977	9.1781	7.8901	1.9104	443.68	5.0171	8.8434
3000	2999	9.7974	9.0840 - 1	7.8713	1.8909 +25	443.15	4.9599 + 9	8.9347 - 8
3100	3098	9.7971	8.9907	7.8526	1.8715	442.61	4.9031	9.0272
3200	3198	9.7968	8.8980	7.8338	1.8523	442.08	4.8469	9.1209
3300	3298	9.7965	8.8061	7.8150	1.8332	441.54	4.7911	9.2158
3400	3398	9.7962	8.7150	7.7962	1.8143	441.00	4.7359	9.3119
3500	3498	9.7959	8.6246	7.7774	1.7955	440.46	4.6812	9.4092
3600	3598	9.7956	8.5349	7.7587	1.7769	439.92	4.6270	9.5078
3700	3698	9.7952	8.4459	7.7399	1.7585	439.38	4.5733	9.6077
3800	3798	9.7949	8.3576	7.7211	1.7401	438.84	4.5201	9.7088
3900	3898	9.7946	8.2700	7.7023	1.7220	438.30	4.4673	9.8113
4000	3997	9.7943	8.1832 - 1	7.6835	1.7039 +25	437.76	4.4151 + 9	9.9151 - 8
4100	4097	9.7940	8.0970	7.6648	1.6860	437.22	4.3633	1.0020 - 7
4200	4197	9.7937	8.0116	7.6460	1.6683	436.68	4.3121	1.0127
4300	4297	9.7934	7.9268	7.6272	1.6507	436.13	4.2613	1.0235
4400	4397	9.7931	7.8428	7.6084	1.6333	435.59	4.2110	1.0344
4500	4497	9.7928	7.7594	7.5896	1.6159	435.04	4.1611	1.0455
4600	4597	9.7925	7.6767	7.5708	1.5988	434.50	4.1117	1.0567
4700	4697	9.7922	7.5947	7.5520	1.5817	433.95	4.0628	1.0681
4800	4796	9.7919	7.5134	7.5332	1.5649	433.40	4.0144	1.0796
4900	4896	9.7915	7.4327	7.5145	1.5481	432.86	3.9664	1.0913
5000	4996	9.7912	7.3527 - 1	7.4957	1.5315 +25	432.31	3.9188 + 9	1.1032 - 7
5100	5096	9.7909	7.2734	7.4769	1.5150	431.76	3.8718	1.1152
5200	5196	9.7906	7.1947	7.4581	1.4987	431.21	3.8251	1.1273
5300	5296	9.7903	7.1167	7.4393	1.4825	430.66	3.7789	1.1396
5400	5395	9.7900	7.0393	7.4205	1.4664	430.11	3.7332	1.1521
5500	5495	9.7897	6.9626	7.4017	1.4505	429.56	3.6879	1.1648
5600	5595	9.7894	6.8866	7.3829	1.4347	429.00	3.6430	1.1776
5700	5695	9.7891	6.8111	7.3641	1.4190	428.45	3.5986	1.1906
5800	5795	9.7888	6.7363	7.3453	1.4035	427.90	3.5546	1.2038
5900	5895	9.7885	6.6622	7.3265	1.3880	427.34	3.5110	1.2172
6000	5994	9.7882	6.5887 - 1	7.3077	1.3728 +25	426.79	3.4679 + 9	1.2307 - 7
6100	6094	9.7879	6.5158	7.2889	1.3576	426.23	3.4251	1.2444
6200	6194	9.7875	6.4435	7.2701	1.3426	425.68	3.3828	1.2583
6300	6294	9.7872	6.3718	7.2513	1.3277	425.12	3.3409	1.2725
6400	6394	9.7869	6.3008	7.2326	1.3130	424.56	3.2994	1.2868
6500	6493	9.7866	6.2303	7.2138	1.2983	424.00	3.2584	1.3013
6600	6593	9.7863	6.1605	7.1950	1.2838	423.44	3.2177	1.3160
6700	6693	9.7860	6.0913	7.1762	1.2694	422.88	3.1774	1.3309
6800	6793	9.7857	6.0227	7.1574	1.2552	422.32	3.1376	1.3460
6900	6893	9.7854	5.9546	7.1386	1.2410	421.76	3.0981	1.3614

ALTITUDE		ACCEL. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLL. FREQ.	MEAN FREE PATH
Z, m	H, m'	$g, m \text{ sec}^{-2}$	$\omega, \text{kg/m}^{-3}$	H_s, km	n, m^{-3}	$\bar{V}, \text{m sec}^{-1}$	ν, sec^{-1}	L, m
7000	6992	9.7851	5.8872 - 1	7.1198	1.2270 +25	421.20	3.0590 + 9	1.3769 - 7
7100	7092	9.7848	5.8203	7.1009	1.2131	420.63	3.0203	1.3927
7200	7192	9.7845	5.7541	7.0821	1.1993	420.07	2.9820	1.4087
7300	7292	9.7842	5.6884	7.0633	1.1857	419.50	2.9441	1.4249
7400	7391	9.7839	5.6233	7.0445	1.1722	418.94	2.9066	1.4413
7500	7491	9.7836	5.5588	7.0257	1.1587	418.37	2.8695	1.4580
7600	7591	9.7832	5.4948	7.0069	1.1454	417.81	2.8327	1.4749
7700	7691	9.7829	5.4314	6.9881	1.1323	417.24	2.7963	1.4921
7800	7790	9.7826	5.3686	6.9693	1.1192	416.67	2.7603	1.5095
7900	7890	9.7823	5.3063	6.9505	1.1063	416.10	2.7246	1.5272
8000	7990	9.7820	5.2446 - 1	6.9317	1.0934 +25	415.53	2.6893 + 9	1.5451 - 7
8100	8090	9.7817	5.1835	6.9129	1.0807	414.96	2.6544	1.5633
8200	8189	9.7814	5.1229	6.8941	1.0681	414.39	2.6198	1.5817
8300	8289	9.7811	5.0628	6.8753	1.0555	413.82	2.5856	1.6005
8400	8389	9.7808	5.0033	6.8565	1.0432	413.24	2.5518	1.6194
8500	8489	9.7805	4.9443	6.8377	1.0310	412.67	2.5183	1.6387
8600	8588	9.7802	4.8859	6.8188	1.0188	412.10	2.4851	1.6583
8700	8688	9.7799	4.8280	6.8000	1.0068	411.52	2.4523	1.6781
8800	8788	9.7796	4.7706	6.7812	9.9485 +24	410.94	2.4199	1.6982
8900	8888	9.7792	4.7137	6.7624	9.8302	410.37	2.3877	1.7186
9000	8987	9.7789	4.6574 - 1	6.7436	9.7130 +24	409.79	2.3560 + 9	1.7394 - 7
9100	9087	9.7786	4.6016	6.7248	9.5969	409.21	2.3245	1.7604
9200	9187	9.7783	4.5463	6.7060	9.4819	408.63	2.2934	1.7818
9300	9286	9.7780	4.4915	6.6872	9.3679	408.05	2.2626	1.8035
9400	9386	9.7777	4.4372	6.6683	9.2550	407.47	2.2322	1.8255
9500	9486	9.7774	4.3835	6.6495	9.1432	406.89	2.2020	1.8478
9600	9586	9.7771	4.3302	6.6307	9.0324	406.31	2.1722	1.8705
9700	9685	9.7768	4.2774	6.6119	8.9226	405.72	2.1427	1.8935
9800	9785	9.7765	4.2252	6.5931	8.8138	405.14	2.1136	1.9168
9900	9885	9.7762	4.1734	6.5743	8.7061	404.56	2.0847	1.9406
10000	9984	9.7759	4.1221 - 1	6.5554	8.5993 +24	403.97	2.0562 + 9	1.9646 - 7
10100	10084	9.7756	4.0713	6.5366	8.4936	403.38	2.0280	1.9891
10200	10184	9.7753	4.0210	6.5178	8.3889	402.80	2.0000	2.0139
10300	10283	9.7749	3.9711	6.4990	8.2852	402.21	1.9724	2.0391
10400	10383	9.7746	3.9218	6.4802	8.1824	401.62	1.9451	2.0647
10500	10483	9.7743	3.8729	6.4613	8.0807	401.03	1.9181	2.0907
10600	10582	9.7740	3.8244	6.4425	7.9799	400.44	1.8914	2.1172
10700	10682	9.7737	3.7765	6.4237	7.8801	399.85	1.8650	2.1440
10800	10782	9.7734	3.7290	6.4049	7.7812	399.25	1.8389	2.1712
10900	10881	9.7731	3.6820	6.3860	7.6833	398.66	1.8130	2.1989
11000	10981	9.7728	3.6354 - 1	6.3672	7.5864 +24	398.07	1.7875 + 9	2.2270 - 7
11100	11081	9.7725	3.5806	6.3638	7.4724	397.95	1.7601	2.2610
11200	11180	9.7722	3.5247	6.3640	7.3559	397.95	1.7327	2.2968
11300	11280	9.7719	3.4696	6.3642	7.2412	397.95	1.7057	2.3331
11400	11380	9.7716	3.4154	6.3644	7.1283	397.95	1.6791	2.3701
11500	11479	9.7713	3.3621	6.3646	7.0172	397.95	1.6529	2.4076
11600	11579	9.7710	3.3096	6.3648	6.9078	397.95	1.6271	2.4457
11700	11679	9.7707	3.2579	6.3650	6.8001	397.95	1.6018	2.4845
11800	11778	9.7703	3.2070	6.3652	6.6941	397.95	1.5768	2.5238
11900	11878	9.7700	3.1569	6.3654	6.5898	397.95	1.5522	2.5638
12000	11977	9.7697	3.1076 - 1	6.3656	6.4870 +24	397.95	1.5280 + 9	2.6044 - 7
12100	12077	9.7694	3.0591	6.3658	6.3859	397.95	1.5042	2.6456
12200	12177	9.7691	3.0113	6.3660	6.2864	397.95	1.4808	2.6875
12300	12276	9.7688	2.9643	6.3662	6.1884	397.95	1.4577	2.7300
12400	12376	9.7685	2.9180	6.3664	6.0920	397.95	1.4350	2.7733
12500	12475	9.7682	2.8724	6.3666	5.9970	397.95	1.4126	2.8172
12600	12575	9.7679	2.8276	6.3668	5.9036	397.95	1.3906	2.8618
12700	12675	9.7676	2.7834	6.3670	5.8116	397.95	1.3689	2.9071
12800	12774	9.7673	2.7400	6.3672	5.7210	397.95	1.3476	2.9531
12900	12874	9.7670	2.6972	6.3674	5.6319	397.95	1.3266	2.9998

ALTITUDE		ACCEL. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLL. FREQ.	MEAN FREE PATH
Z, m	H, m'	g, m sec ⁻²	ω , kg/m ³	H _s , km	n, m ⁻³	\bar{v} , m sec ⁻¹	ν , sec ⁻¹	L, m
13000	12973	9.7667	2.6551 - 1	6.3676	5.5441 +24	397.95	1.3059 + 9	3.0473 - 7
13100	13073	9.7664	2.6136	6.3678	5.4577	397.95	1.2856	3.0956
13200	13173	9.7660	2.5728	6.3680	5.3727	397.95	1.2655	3.1445
13300	13272	9.7657	2.5326	6.3682	5.2890	397.95	1.2458	3.1943
13400	13372	9.7654	2.4931	6.3684	5.2066	397.95	1.2264	3.2449
13500	13471	9.7651	2.4542	6.3686	5.1255	397.95	1.2073	3.2962
13600	13571	9.7648	2.4159	6.3688	5.0456	397.95	1.1885	3.3484
13700	13671	9.7645	2.3782	6.3690	4.9670	397.95	1.1700	3.4014
13800	13770	9.7642	2.3410	6.3692	4.8896	397.95	1.1517	3.4552
13900	13870	9.7639	2.3045	6.3694	4.8135	397.95	1.1338	3.5099
14000	13969	9.7636	2.2685 - 1	6.3696	4.7385 +24	397.95	1.1161 + 9	3.5654 - 7
14100	14069	9.7633	2.2331	6.3698	4.6647	397.95	1.0988	3.6218
14200	14168	9.7630	2.1983	6.3700	4.5920	397.95	1.0816	3.6791
14300	14268	9.7627	2.1640	6.3702	4.5205	397.95	1.0648	3.7374
14400	14367	9.7624	2.1302	6.3704	4.4501	397.95	1.0482	3.7965
14500	14467	9.7621	2.0970	6.3706	4.3808	397.95	1.0319	3.8566
14600	14567	9.7618	2.0642	6.3708	4.3125	397.95	1.0158	3.9176
14700	14666	9.7615	2.0320	6.3710	4.2454	397.95	9.9999 + 8	3.9795
14800	14766	9.7611	2.0003	6.3712	4.1793	397.95	9.8442	4.0425
14900	14865	9.7608	1.9691	6.3714	4.1142	397.95	9.6909	4.1065
15000	14965	9.7605	1.9384 - 1	6.3716	4.0501 +24	397.95	9.5400 + 8	4.1714 - 7
15100	15064	9.7602	1.9081	6.3718	3.9870	397.95	9.3914	4.2374
15200	15164	9.7599	1.8784	6.3720	3.9250	397.95	9.2452	4.3044
15300	15263	9.7596	1.8491	6.3722	3.8638	397.95	9.1012	4.3725
15400	15363	9.7593	1.8202	6.3724	3.8037	397.95	8.9595	4.4417
15500	15462	9.7590	1.7918	6.3726	3.7445	397.95	8.8200	4.5119
15600	15562	9.7587	1.7639	6.3728	3.6862	397.95	8.6827	4.5833
15700	15661	9.7584	1.7363	6.3730	3.6288	397.95	8.5475	4.6558
15800	15761	9.7581	1.7093	6.3732	3.5723	397.95	8.4144	4.7294
15900	15860	9.7578	1.6826	6.3734	3.5167	397.95	8.2834	4.8042
16000	15960	9.7575	1.6563 - 1	6.3736	3.4619 +24	397.95	8.1545 + 8	4.8802 - 7
16100	16059	9.7572	1.6305	6.3738	3.4080	397.95	8.0276	4.9573
16200	16159	9.7569	1.6051	6.3740	3.3550	397.95	7.9026	5.0357
16300	16258	9.7566	1.5800	6.3742	3.3027	397.95	7.7796	5.1153
16400	16358	9.7562	1.5554	6.3744	3.2513	397.95	7.6585	5.1962
16500	16457	9.7559	1.5311	6.3746	3.2007	397.95	7.5393	5.2784
16600	16557	9.7556	1.5073	6.3748	3.1509	397.95	7.4219	5.3618
16700	16656	9.7553	1.4838	6.3750	3.1019	397.95	7.3064	5.4466
16800	16756	9.7550	1.4606	6.3752	3.0536	397.95	7.1927	5.5327
16900	16855	9.7547	1.4378	6.3754	3.0061	397.95	7.0808	5.6202
17000	16955	9.7544	1.4154 - 1	6.3756	2.9593 +24	397.95	6.9706 + 8	5.7090 - 7
17100	17054	9.7541	1.3933	6.3758	2.9132	397.95	6.8621	5.7993
17200	17154	9.7538	1.3716	6.3760	2.8679	397.95	6.7553	5.8910
17300	17253	9.7535	1.3502	6.3762	2.8233	397.95	6.6502	5.9841
17400	17353	9.7532	1.3292	6.3764	2.7793	397.95	6.5467	6.0787
17500	17452	9.7529	1.3085	6.3766	2.7361	397.95	6.4448	6.1747
17600	17551	9.7526	1.2881	6.3768	2.6935	397.95	6.3445	6.2723
17700	17651	9.7523	1.2680	6.3770	2.6516	397.95	6.2458	6.3715
17800	17750	9.7520	1.2482	6.3772	2.6104	397.95	6.1487	6.4722
17900	17850	9.7517	1.2288	6.3774	2.5697	397.95	6.0530	6.5745
18000	17949	9.7514	1.2096 - 1	6.3776	2.5298 +24	397.95	5.9588 + 8	6.6784 - 7
18100	18049	9.7510	1.1907	6.3778	2.4904	397.95	5.8661	6.7839
18200	18148	9.7507	1.1722	6.3780	2.4517	397.95	5.7749	6.8911
18300	18247	9.7504	1.1539	6.3782	2.4135	397.95	5.6850	7.0000
18400	18347	9.7501	1.1359	6.3784	2.3760	397.95	5.5966	7.1106
18500	18446	9.7498	1.1182	6.3786	2.3390	397.95	5.5095	7.2230
18600	18546	9.7495	1.1008	6.3788	2.3026	397.95	5.4238	7.3371
18700	18645	9.7492	1.0836	6.3790	2.2668	397.95	5.3395	7.4530
18800	18745	9.7489	1.0667	6.3792	2.2316	397.95	5.2564	7.5708
18900	18844	9.7486	1.0501	6.3794	2.1969	397.95	5.1747	7.6904

ALTITUDE		ACCEL. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLL. FREQ.	MEAN FREE PATH
Z, m	H, m'	g, m sec ⁻²	$\omega, \text{kg/m}^3$	H _s , km	n, m ⁻³	$\bar{V}, \text{m sec}^{-1}$	v, sec^{-1}	L, m
19000	18943	9.7483	1.0338 - 1	6.3796	2.1627 +24	397.95	5.0942 + 8	7.8119 - 7
19100	19043	9.7480	1.0176	6.3798	2.1290	397.95	5.0149	7.9353
19200	19142	9.7477	1.0018	6.3800	2.0959	397.95	4.9370	8.0607
19300	19242	9.7474	9.8618 - 2	6.3802	2.0633	397.95	4.8602	8.1860
19400	19341	9.7471	9.7081	6.3804	2.0313	397.95	4.7846	8.3174
19500	19440	9.7468	9.5569	6.3806	1.9997	397.95	4.7102	8.4487
19600	19540	9.7465	9.4080	6.3808	1.9686	397.95	4.6369	8.5822
19700	19639	9.7461	9.2614	6.3810	1.9380	397.95	4.5648	8.7177
19800	19739	9.7458	9.1171	6.3812	1.9078	397.95	4.4939	8.8554
19900	19838	9.7455	8.9750	6.3814	1.8782	397.95	4.4240	8.9953
20000	19937	9.7452	8.8352 - 2	6.3816	1.8490 +24	397.95	4.3552 + 8	9.1374 - 7
20200	20136	9.7446	8.5621	6.3820	1.7919	397.95	4.2208	9.4283
20400	20335	9.7440	8.2974	6.3824	1.7366	397.95	4.0906	9.7284
20600	20533	9.7434	8.0409	6.3828	1.6831	397.95	3.9644	1.0038 - 6
20800	20732	9.7428	7.7924	6.3832	1.6311	397.95	3.8421	1.0358
21000	20931	9.7422	7.5516	6.3836	1.5808	397.95	3.7236	1.0687
21200	21130	9.7416	7.3182	6.3840	1.5321	397.95	3.6088	1.1027
21400	21328	9.7410	7.0920	6.3844	1.4848	397.95	3.4975	1.1378
21600	21527	9.7403	6.8729	6.3848	1.4390	397.95	3.3896	1.1740
21800	21725	9.7397	6.6605	6.3852	1.3946	397.95	3.2851	1.2114
22000	21924	9.7391	6.4547 - 2	6.3856	1.3516 +24	397.95	3.1838 + 8	1.2499 - 6
22200	22123	9.7385	6.2553	6.3860	1.3100	397.95	3.0856	1.2897
22400	22321	9.7379	6.0621	6.3864	1.2696	397.95	2.9905	1.3307
22600	22520	9.7373	5.8748	6.3868	1.2304	397.95	2.8983	1.3731
22800	22719	9.7367	5.6933	6.3872	1.1925	397.95	2.8089	1.4167
23000	22917	9.7361	5.5175	6.3876	1.1557	397.95	2.7223	1.4618
23200	23116	9.7355	5.3471	6.3880	1.1201	397.95	2.6384	1.5083
23400	23314	9.7348	5.1819	6.3884	1.0856	397.95	2.5571	1.5563
23600	23513	9.7342	5.0219	6.3888	1.0521	397.95	2.4783	1.6058
23800	23711	9.7336	4.8668	6.3892	1.0197	397.95	2.4019	1.6568
24000	23910	9.7330	4.7166 - 2	6.3896	9.8828 +23	397.95	2.3279 + 8	1.7095 - 6
24200	24108	9.7324	4.5709	6.3900	9.5783	397.95	2.2562	1.7639
24400	24307	9.7318	4.4298	6.3904	9.2831	397.95	2.1866	1.8199
24600	24505	9.7312	4.2931	6.3908	8.9971	397.95	2.1193	1.8778
24800	24704	9.7306	4.1605	6.3912	8.7199	397.95	2.0540	1.9375
25000	24902	9.7300	4.0321	6.3916	8.4513	397.95	1.9907	1.9991
25200	25100	9.7294	3.9023	6.4009	8.1796	398.23	1.9280	2.0655
25400	25299	9.7287	3.7718	6.4189	7.9067	398.77	1.8663	2.1368
25600	25497	9.7281	3.6460	6.4368	7.6435	399.32	1.8066	2.2103
25800	25696	9.7275	3.5248	6.4548	7.3899	399.86	1.7490	2.2862
26000	25894	9.7269	3.4079 - 2	6.4728	7.1453 +23	400.41	1.6934 + 8	2.3645 - 6
26200	26092	9.7263	3.2952	6.4907	6.9094	400.95	1.6398	2.4452
26400	26291	9.7257	3.1866	6.5087	6.6820	401.49	1.5879	2.5284
26600	26489	9.7251	3.0818	6.5267	6.4626	402.03	1.5379	2.6142
26800	26687	9.7245	2.9807	6.5446	6.2510	402.57	1.4895	2.7027
27000	26886	9.7239	2.8852	6.5626	6.0469	403.11	1.4428	2.7939
27200	27084	9.7233	2.7891	6.5806	5.8500	403.65	1.3977	2.8880
27400	27282	9.7227	2.6983	6.5986	5.6600	404.19	1.3541	2.9849
27600	27481	9.7220	2.6108	6.6165	5.4767	404.73	1.3120	3.0848
27800	27679	9.7214	2.5263	6.6345	5.2997	405.27	1.2713	3.1878
28000	27877	9.7208	2.4447 - 2	6.6525	5.1290 +23	405.80	1.2320 + 8	3.2939 - 6
28200	28075	9.7202	2.3660	6.6705	4.9642	406.34	1.1939	3.4033
28400	28274	9.7196	2.2901	6.6884	4.8051	406.87	1.1572	3.5160
28600	28472	9.7190	2.2167	6.7064	4.6515	407.40	1.1217	3.6321
28800	28670	9.7184	2.1459	6.7244	4.5032	407.94	1.0874	3.7517
29000	28868	9.7178	2.0776	6.7424	4.3601	408.47	1.0542	3.8749
29200	29066	9.7172	2.0116	6.7604	4.2218	409.00	1.0221	4.0018
29400	29265	9.7166	1.9478	6.7784	4.0883	409.53	9.9101 + 7	4.1325
29600	29463	9.7160	1.8863	6.7963	3.9593	410.06	9.6099	4.2671
29800	29661	9.7153	1.8268	6.8143	3.8347	410.59	9.3196	4.4057

ALTITUDE		ACCEL. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLL. FREQ.	MEAN FREE PATH
Z, m	H, m'	g, m sec ⁻²	$\omega, \text{kg}^f \text{m}^{-3}$	H _s , km	n, m^{-3}	$\bar{V}, \text{m sec}^{-1}$	v, sec^{-1}	L, m
30000	29859	9.7147	1.7694 - 2	6.8323	3.7144 +23	411.12	9.0387 + 7	4.5484 - 6
30200	30057	9.7141	1.7139	6.8503	3.5981	411.65	8.7671	4.6954
30400	30255	9.7135	1.6603	6.8683	3.4858	412.18	8.5042	4.8467
30600	30453	9.7129	1.6085	6.8863	3.3772	412.70	8.2499	5.0025
30800	30651	9.7123	1.5584	6.9043	3.2723	413.23	8.0039	5.1629
31000	30850	9.7117	1.5100	6.9223	3.1710	413.75	7.7658	5.3279
31200	31048	9.7111	1.4633	6.9403	3.0730	414.28	7.5354	5.4978
31400	31246	9.7105	1.4181	6.9583	2.9783	414.80	7.3123	5.6726
31600	31444	9.7099	1.3744	6.9763	2.8867	415.33	7.0965	5.8526
31800	31642	9.7093	1.3322	6.9943	2.7982	415.85	6.8875	6.0377
32000	31840	9.7087	1.2913 - 2	7.0123	2.7126 +23	416.37	6.6852 + 7	6.2282 - 6
32200	32038	9.7080	1.2519	7.0303	2.6298	416.89	6.4893	6.4242
32400	32236	9.7074	1.2137	7.0483	2.5498	417.41	6.2997	6.6259
32600	32434	9.7068	1.1768	7.0663	2.4724	417.93	6.1161	6.8333
32800	32632	9.7062	1.1411	7.0843	2.3975	418.45	5.9382	7.0467
33000	32830	9.7056	1.1065	7.1023	2.3251	418.97	5.7660	7.2662
33200	33028	9.7050	1.0731	7.1203	2.2550	419.49	5.5992	7.4919
33400	33225	9.7044	1.0408	7.1383	2.1873	420.00	5.4376	7.7241
33600	33423	9.7038	1.0095	7.1563	2.1217	420.52	5.2810	7.9628
33800	33621	9.7032	9.7928 - 3	7.1743	2.0582	421.03	5.1294	8.2083
34000	33819	9.7026	9.5001 - 3	7.1923	1.9968 +23	421.55	4.9824 + 7	8.4607 - 6
34200	34017	9.7020	9.2168	7.2104	1.9374	422.06	4.8401	8.7202
34400	34215	9.7014	8.9426	7.2284	1.8799	422.58	4.7021	8.9870
34600	34413	9.7008	8.6772	7.2464	1.8242	423.09	4.5684	9.2613
34800	34611	9.7002	8.4204	7.2644	1.7703	423.60	4.4388	9.5432
35000	34808	9.6995	8.1717	7.2824	1.7182	424.11	4.3132	9.8330
35200	35006	9.6989	7.9310	7.3004	1.6677	424.63	4.1914	1.0131 - 5
35400	35204	9.6983	7.6979	7.3185	1.6187	425.14	4.0734	1.0437
35600	35402	9.6977	7.4723	7.3365	1.5714	425.65	3.9590	1.0731
35800	35600	9.6971	7.2537	7.3545	1.5255	426.16	3.8480	1.1075
36000	35797	9.6965	7.0421 - 3	7.3725	1.4811 +23	426.66	3.7405 + 7	1.1407 - 5
36200	35995	9.6959	6.8372	7.3905	1.4381	427.17	3.6362	1.1748
36400	36193	9.6953	6.6386	7.4086	1.3964	427.68	3.5350	1.2098
36600	36390	9.6947	6.4463	7.4266	1.3561	428.19	3.4369	1.2459
36800	36588	9.6941	6.2601	7.4446	1.3170	428.69	3.3417	1.2828
37000	36786	9.6935	6.0796	7.4627	1.2791	429.20	3.2494	1.3208
37200	36984	9.6929	5.9048	7.4807	1.2424	429.70	3.1599	1.3599
37400	37181	9.6923	5.7353	7.4987	1.2068	430.21	3.0730	1.3999
37600	37379	9.6917	5.5712	7.5167	1.1723	430.71	2.9887	1.4411
37800	37577	9.6911	5.4121	7.5348	1.1389	431.21	2.9070	1.4834
38000	37774	9.6904	5.2579 - 3	7.5528	1.1066 +23	431.71	2.8276 + 7	1.5268 - 5
38200	37972	9.6898	5.1085	7.5708	1.0752	432.22	2.7506	1.5713
38400	38169	9.6892	4.9636	7.5889	1.0447	432.72	2.6759	1.6171
38600	38367	9.6886	4.8232	7.6069	1.0153	433.22	2.6033	1.6641
38800	38565	9.6880	4.6871	7.6250	9.8666 +22	433.72	2.5329	1.7123
39000	38762	9.6874	4.5551	7.6430	9.5894	434.22	2.4646	1.7618
39200	38960	9.6868	4.4271	7.6610	9.3206	434.71	2.3983	1.8126
39400	39157	9.6862	4.3031	7.6791	9.0600	435.21	2.3339	1.8648
39600	39355	9.6856	4.1827	7.6971	8.8072	435.71	2.2714	1.9183
39800	39552	9.6850	4.0660	7.7152	8.5620	436.21	2.2106	1.9732
40000	39750	9.6844	3.9529 - 3	7.7332	8.3242 +22	436.70	2.1517 + 7	2.0296 - 5
40200	39947	9.6838	3.8431	7.7513	8.0935	437.20	2.0944	2.0874
40400	40145	9.6832	3.7366	7.7693	7.8698	437.69	2.0388	2.1468
40600	40342	9.6826	3.6333	7.7874	7.6527	438.19	1.9848	2.2077
40800	40540	9.6820	3.5331	7.8054	7.4421	438.68	1.9324	2.2701
41000	40737	9.6814	3.4359	7.8235	7.2378	439.17	1.8815	2.3342
41200	40935	9.6808	3.3416	7.8415	7.0395	439.67	1.8320	2.4000
41400	41132	9.6801	3.2500	7.8596	6.8471	440.16	1.7839	2.4674
41600	41330	9.6795	3.1612	7.8776	6.6604	440.65	1.7372	2.5366
41800	41527	9.6789	3.0750	7.8957	6.4791	441.14	1.6918	2.6075

ALTITUDE		ACCEL. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLL. FREQ.	MEAN FREE PATH
Z, m	H, m'	g, m sec ⁻²	ω , kgf m ⁻³	H _g , km	n, m ⁻³	\bar{V} , m sec ⁻¹	v, sec ⁻¹	L, m
42000	41724	9.6783	2.9913 - 3	7.9137	6.3032 +22	441.63	1.6477 + 7	2.6803 - 5
42200	41922	9.6777	2.9101	7.9318	6.1325	442.12	1.6048	2.7549
42400	42119	9.6771	2.8313	7.9498	5.9668	442.61	1.5632	2.8315
42600	42316	9.6765	2.7548	7.9679	5.8059	443.10	1.5227	2.9099
42800	42514	9.6759	2.6805	7.9860	5.6497	443.59	1.4834	2.9904
43000	42711	9.6753	2.6084	8.0040	5.4980	444.08	1.4451	3.0729
43200	42908	9.6747	2.5383	8.0221	5.3507	444.56	1.4080	3.1574
43400	43106	9.6741	2.4705	8.0401	5.2077	445.05	1.3718	3.2442
43600	43303	9.6735	2.4043	8.0582	5.0689	445.53	1.3367	3.3330
43800	43500	9.6729	2.3402	8.0763	4.9340	446.02	1.3026	3.4241
44000	43698	9.6723	2.2779 - 3	8.0943	4.8050 +22	446.50	1.2694 + 7	3.5175 - 5
44200	43895	9.6717	2.2174	8.1124	4.6758	446.99	1.2371	3.6133
44400	44092	9.6711	2.1587	8.1305	4.5522	447.47	1.2057	3.7114
44600	44289	9.6705	2.1016	8.1486	4.4321	447.95	1.1752	3.8119
44800	44486	9.6699	2.0462	8.1666	4.3155	448.44	1.1455	3.9149
45000	44684	9.6693	1.9923	8.1847	4.2021	448.92	1.1166	4.0205
45200	44881	9.6687	1.9400	8.2028	4.0920	449.40	1.0885	4.1287
45400	45078	9.6681	1.8894	8.2208	3.9850	449.88	1.0612	4.2393
45600	45275	9.6674	1.8398	8.2389	3.8811	450.36	1.0346	4.3531
45800	45472	9.6668	1.7917	8.2570	3.7800	450.84	1.0087	4.4695
46000	45670	9.6662	1.7451 - 3	8.2751	3.6818 +22	451.32	9.8356 + 6	4.5886 - 5
46200	45867	9.6656	1.6998	8.2932	3.5864	451.80	9.5908	4.7108
46400	46064	9.6650	1.6557	8.3112	3.4936	452.28	9.3526	4.8358
46600	46261	9.6644	1.6129	8.3293	3.4035	452.75	9.1209	4.9640
46800	46458	9.6638	1.5712	8.3474	3.3158	453.23	8.8953	5.0952
47000	46655	9.6632	1.5307	8.3655	3.2306	453.71	8.6758	5.2296
47200	46852	9.6626	1.4914	8.3836	3.1478	454.18	8.4622	5.3672
47400	47049	9.6620	1.4539	8.3973	3.0688	454.64	8.2564	5.5053
47600	47246	9.6614	1.4196	8.3978	2.9966	454.64	8.0621	5.6380
47800	47443	9.6608	1.3861	8.3983	2.9261	454.64	7.8724	5.7739
48000	47640	9.6602	1.3534 - 3	8.3989	2.8572 +22	454.64	7.6871 + 6	5.9130 - 5
48200	47837	9.6596	1.3215	8.3994	2.7900	454.64	7.5062	6.0555
48400	48034	9.6590	1.2905	8.3999	2.7243	454.64	7.3296	6.2014
48600	48231	9.6584	1.2599	8.4004	2.6602	454.64	7.1572	6.3508
48800	48428	9.6578	1.2301	8.4009	2.5976	454.64	6.9888	6.5039
49000	48625	9.6572	1.2011	8.4015	2.5363	454.64	6.8244	6.6603
49200	48822	9.6566	1.1728	8.4020	2.4769	454.64	6.6638	6.8210
49400	49019	9.6560	1.1451	8.4025	2.4186	454.64	6.5071	6.9853
49600	49216	9.6554	1.1181	8.4030	2.3617	454.64	6.3541	7.1536
49800	49413	9.6548	1.0918	8.4036	2.3062	454.64	6.2046	7.3259
50000	49610	9.6542	1.0660 - 3	8.4041	2.2519 +22	454.64	6.0587 + 6	7.5023 - 5
50500	50102	9.6527	1.0043	8.4054	2.1219	454.64	5.7088	7.9622
51000	50594	9.6512	9.4616 - 4	8.4067	1.9993	454.64	5.3791	8.4301
51500	51086	9.6497	8.9139	8.4080	1.8839	454.64	5.0685	8.9679
52000	51578	9.6481	8.3980	8.4093	1.7751	454.64	4.7759	9.5173
52500	52070	9.6466	7.9120	8.4107	1.6727	454.64	4.5003	1.0100 - 4
53000	52562	9.6451	7.4543	8.4120	1.5762	454.64	4.2405	1.0719
53500	53053	9.6436	7.0290	8.4061	1.4865	454.64	3.9975	1.1366
54000	53545	9.6421	6.6388	8.3416	1.4114	452.36	3.7807	1.1970
54500	54037	9.6406	6.2821	8.2770	1.3395	450.77	3.5740	1.2613
55000	54528	9.6391	6.0064 - 4	8.2124	1.2708 +22	448.98	3.3772 + 6	1.3294 - 4
55500	55020	9.6376	5.6950	8.1479	1.2051	447.17	3.1897	1.4019
56000	55511	9.6361	5.3973	8.0833	1.1423	445.36	3.0114	1.4789
56500	56002	9.6346	5.1134	8.0187	1.0824	443.55	2.8416	1.5609
57000	56493	9.6331	4.8421	7.9540	1.0251	441.72	2.6802	1.6481
57500	56985	9.6316	4.5831	7.8894	9.7044 +21	439.89	2.5267	1.7409
58000	57476	9.6301	4.3361	7.8248	9.1827	438.05	2.3809	1.8398
58500	57967	9.6286	4.1005	7.7602	8.6851	436.20	2.2424	1.9452
59000	58457	9.6271	3.8759	7.6955	8.2105	434.35	2.1109	2.0577
59500	58948	9.6256	3.6618	7.6308	7.7584	432.48	1.9861	2.1776

ALTITUDE		ACCEL. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLL. FREQ.	MEAN FREE PATH
Z, m	H, m'	g, m sec ⁻²	ω , kgf m ⁻³	Z _g , km	η , m ⁻³	V, m sec ⁻¹	ν , sec ⁻¹	L, m
60000	59439	9.6241	3.4579 - 4	7.5662	7.3275 +21	430.61	1.8677 + 6	2.3056 - 4
60500	59930	9.6226	3.2638	7.5015	6.9172	428.74	1.7554	2.4424
61000	60420	9.6211	3.0790	7.4368	6.5266	426.85	1.6490	2.5886
61500	60911	9.6196	2.9032	7.3721	6.1549	424.96	1.5482	2.7449
62000	61401	9.6181	2.7360	7.3074	5.8014	423.05	1.4527	2.9122
62500	61891	9.6166	2.5771	7.2426	5.4654	421.14	1.3624	3.0912
63000	62382	9.6151	2.4262	7.1779	5.1460	419.22	1.2769	3.2831
63500	62872	9.6136	2.2828	7.1132	4.8426	417.30	1.1961	3.4887
64000	63362	9.6121	2.1467	7.0484	4.5546	415.36	1.1198	3.7093
64500	63852	9.6106	2.0176	6.9837	4.2813	413.42	1.0477	3.9461
65000	64342	9.6091	1.8951 - 4	6.9189	4.0221 +21	411.46	9.7957 + 5	4.2004 - 4
65500	64832	9.6076	1.7791	6.8541	3.7764	409.50	9.1534	4.4738
66000	65322	9.6061	1.6691	6.7893	3.5435	407.53	8.5476	4.7677
66500	65812	9.6046	1.5650	6.7245	3.3230	405.55	7.9767	5.0841
67000	66301	9.6031	1.4665	6.6597	3.1143	403.56	7.4390	5.4249
67500	66791	9.6016	1.3733	6.5949	2.9168	401.56	6.9327	5.7922
68000	67280	9.6001	1.2851	6.5300	2.7301	399.55	6.4564	6.1833
68500	67770	9.5987	1.2019	6.4652	2.5536	397.53	6.0086	6.6159
69000	68259	9.5972	1.1233	6.4003	2.3870	395.50	5.5878	7.0778
69500	68748	9.5957	1.0491	6.3354	2.2297	393.46	5.1926	7.5772
70000	69238	9.5942	9.7911 - 5	6.2706	2.0813 +21	391.41	4.8217 + 5	8.1175 - 4
70500	69727	9.5927	9.1314	6.2057	1.9413	389.35	4.4739	8.7026
71000	70216	9.5912	8.5100	6.1408	1.8095	387.27	4.1479	9.3367
71500	70705	9.5897	7.9249	6.0759	1.6854	385.19	3.8425	1.0024 - 3
72000	71194	9.5882	7.3744	6.0110	1.5685	383.10	3.5967	1.0771
72500	71682	9.5867	6.8568	5.9460	1.4587	380.99	3.2894	1.1582
73000	72171	9.5852	6.3704	5.8811	1.3554	378.88	3.0396	1.2465
73500	72660	9.5837	5.9138	5.8162	1.2584	376.75	2.8063	1.3425
74000	73148	9.5822	5.4853	5.7512	1.1674	374.61	2.5886	1.4472
74500	73637	9.5808	5.0835	5.6862	1.0821	372.46	2.3856	1.5613
75000	74125	9.5793	4.7070 - 5	5.6212	1.0021 +21	370.30	2.1964 + 5	1.6859 - 3
75500	74614	9.5778	4.354	5.556	9.272 +20	368.1	2.020	1.822
76000	75102	9.576	4.025	5.491	8.571	365.9	1.857	1.971
76500	75590	9.575	3.716	5.426	7.916	363.7	1.704	2.134
77000	76078	9.573	3.428	5.361	7.304	361.5	1.563	2.313
77500	76566	9.572	3.160	5.296	6.732	359.3	1.432	2.510
78000	77054	9.570	2.909	5.231	6.199	357.1	1.310	2.725
78500	77542	9.569	2.676	5.166	5.703	354.8	1.198	2.963
79000	78030	9.567	2.458	5.101	5.240	352.5	1.093	3.224
79500	78518	9.566	2.256	5.036	4.810	350.2	9.972 + 4	3.512
80000	79006	9.564	2.068 - 5	4.972	4.410 +20	348.0	9.082 + 4	3.831 - 3
80500	79493	9.563	1.870	4.972	3.988	348.0	8.213	4.237
81000	79981	9.561	1.691	4.973	3.606	348.0	7.428	4.685
81500	80468	9.560	1.529	4.974	3.261	348.0	6.717	5.180
82000	80956	9.558	1.382	4.975	2.949	348.0	6.075	5.728
82500	81443	9.557	1.250	4.976	2.667	348.0	5.494	6.334
83000	81930	9.555	1.130	4.976	2.412	348.0	4.969	7.005
83500	82417	9.554	1.022	4.977	2.182	348.0	4.494	7.743
84000	82904	9.553	9.243 - 6	4.978	1.973	348.0	4.064	8.562
84500	83391	9.551	8.358	4.979	1.785	348.0	3.676	9.466
85000	83878	9.550	7.559 - 6	4.979	1.614 +20	348.0	3.325 + 4	1.047 - 2
85500	84365	9.548	6.835	4.980	1.460	348.0	3.007	1.157
86000	84852	9.547	6.182	4.981	1.321	348.0	2.720	1.279
86500	85339	9.545	5.590	4.982	1.194	348.0	2.460	1.414
87000	85825	9.544	5.056	4.982	1.080	348.0	2.225	1.564
87500	86312	9.542	4.572	4.983	9.772 +19	348.0	2.013	1.729
88000	86798	9.541	4.135	4.984	8.840	348.0	1.821	1.911
88500	87285	9.539	3.740	4.985	7.996	348.0	1.647	2.113
89000	87771	9.538	3.383	4.986	7.233	348.0	1.490	2.336
89500	88257	9.536	3.059	4.986	6.543	348.0	1.348	2.582

ALTITUDE		ACCEL. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLL. FREQ.	MEAN FREE PATH
Z, m	H, m'	g, m sec ⁻²	ω , kg/ m ⁻³	H _g , km	n, m ⁻³	\bar{V} , m sec ⁻¹	v, sec ⁻¹	L, m
90000	88743	9.535	2.767 - 6	4.987	5.918 +19	348.0	1.219 + 4	2.835 - 2
90500	89230	9.533	2.503	4.988	5.354	348.0	1.103	3.156
91000	89716	9.532	2.264	4.989	4.843	348.0	9.976 + 3	3.488
91500	90202	9.530	2.038	5.014	4.361	348.8	9.004	3.874
92000	90687	9.529	1.824	5.073	3.904	350.9	8.102	4.327
92500	91173	9.527	1.635	5.132	3.500	352.9	7.310	4.827
93000	91659	9.526	1.467	5.192	3.141	354.9	6.598	5.378
93500	92145	9.524	1.318	5.251	2.823	356.9	5.963	5.985
94000	92630	9.523	1.185	5.310	2.540	358.9	5.395	6.652
94500	93116	9.521	1.067	5.370	2.288	360.8	4.867	7.384
95000	93601	9.520	9.623 - 7	5.429	2.063 +19	362.8	4.431 + 3	8.188 - 2
95500	94086	9.518	8.686	5.489	1.863	364.7	4.022	9.069
96000	94572	9.517	7.848	5.548	1.684	366.7	3.655	1.003 - 1
96500	95057	9.516	7.099	5.607	1.524	368.6	3.324	1.109
97000	95542	9.514	6.429	5.667	1.380	370.5	3.027	1.224
97500	96027	9.513	5.827	5.726	1.251	372.4	2.758	1.350
98000	96512	9.511	5.288	5.786	1.136	374.3	2.516	1.488
98500	96997	9.510	4.803	5.845	1.032	376.2	2.298	1.637
99000	97482	9.508	4.366	5.905	9.384 +18	378.1	2.100	1.800
99500	97966	9.507	3.974	5.964	8.542	380.0	1.921	1.978
100000	98451	9.505	3.619 - 7	6.023	7.783 +18	381.8	1.759 + 3	2.171 - 1
101000	98940	9.502	3.011	6.142	6.479	383.5	1.479	2.607
102000	100429	9.499	2.514	6.261	5.413	385.2	1.247	3.121
103000	101418	9.496	2.106	6.380	4.537	386.8	1.055	3.724
104000	102406	9.493	1.770	6.500	3.816	396.4	8.953 + 2	4.428
105000	103394	9.491	1.493	6.619	3.219	399.9	7.621	5.248
106000	104381	9.488	1.262	6.738	2.724	403.5	6.506	6.202
107000	105369	9.485	1.074	6.858	2.276	410.2	5.526	7.423
108000	106356	9.482	8.468 - 8	7.555	1.830	427.1	4.626	9.233
109000	107342	9.479	6.917	8.143	1.496	443.3	3.924	1.130 + 0
110000	108329	9.476	5.730 - 8	8.731	1.240 +18	459.0	3.368 + 2	1.363 + 0
111000	109315	9.473	4.803	9.319	1.040	474.1	2.919	1.624
112000	110301	9.470	4.073	9.908	8.823 +17	488.8	2.553	1.915
113000	111286	9.467	3.483	10.50	7.555	503.0	2.250	2.236
114000	112271	9.464	3.008	11.09	6.525	516.9	1.996	2.589
115000	113256	9.461	2.616	11.67	5.678	530.3	1.782	2.975
116000	114241	9.458	2.291	12.26	4.973	543.5	1.600	3.396
117000	115226	9.455	2.018	12.85	4.387	556.3	1.444	3.851
118000	116211	9.452	1.789	13.44	3.890	568.8	1.310	4.343
119000	117196	9.450	1.593	14.03	3.467	581.1	1.192	4.873
120000	118181	9.447	1.426 - 8	14.62	3.105 +17	593.1	1.090 + 2	5.441 + 0
121000	119166	9.444	1.282	15.21	2.793	604.8	9.998 + 1	6.049
122000	120151	9.441	1.157	15.80	2.522	616.3	9.202	6.698
123000	121136	9.438	1.048	16.39	2.287	627.7	8.495	7.388
124000	122121	9.435	9.325 - 9	16.98	2.080	638.8	7.865	8.122
125000	123106	9.432	8.687	17.57	1.899	649.7	7.301	8.898
126000	124091	9.429	7.947	18.16	1.738	660.4	6.794	9.720
127000	125076	9.426	7.291	18.75	1.596	671.0	6.337	1.059 + 1
128000	126061	9.423	6.706	19.35	1.469	681.4	5.924	1.150
129000	127046	9.420	6.184	19.94	1.356	691.6	5.549	1.246
130000	128031	9.417	5.717 - 9	20.53	1.254 +17	701.7	5.208 + 1	1.347 + 1
131000	129016	9.415	5.296	21.12	1.163	711.6	4.897	1.453
132000	129999	9.412	4.916	21.71	1.080	721.4	4.612	1.564
133000	130984	9.409	4.573	22.31	1.006	731.0	4.351	1.680
134000	131969	9.406	4.262	22.90	9.380 +16	740.6	4.111	1.801
135000	132954	9.403	3.979	23.49	8.764	750.0	3.891	1.928
136000	133939	9.400	3.722	24.08	8.203	759.3	3.687	2.060
137000	134924	9.397	3.486	24.68	7.691	768.4	3.498	2.197
138000	135909	9.394	3.271	25.27	7.222	777.5	3.323	2.339
139000	136894	9.391	3.073	25.86	6.791	786.4	3.161	2.488

ALTITUDE		ACCEL. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLL. FREQ.	MEAN FREE PATH
Z, m	H, m'	g, m sec ⁻²	ω , kgf m ⁻³	H _s , km	n, m ⁻³	\bar{V} , m sec ⁻¹	v, sec ⁻¹	L, m
140000	136983	9.389	2.892 - 9	26.46	6.395 +16	795.3	3.010 + 1	2.642 + 1
141000	137940	9.386	2.724	27.05	6.031	804.0	2.870	2.801
142000	138897	9.383	2.570	27.64	5.694	812.7	2.739	2.967
143000	139854	9.380	2.428	28.24	5.383	821.3	2.617	3.138
144000	140810	9.377	2.296	28.83	5.096	829.7	2.503	3.316
145000	141766	9.374	2.173	29.43	4.829	838.1	2.395	3.499
146000	142722	9.371	2.060	30.02	4.581	846.4	2.295	3.688
147000	143677	9.368	1.954	30.62	4.350	854.6	2.201	3.884
148000	144632	9.365	1.856	31.21	4.135	862.7	2.112	4.085
149000	145587	9.363	1.764	31.81	3.935	870.8	2.028	4.293
150000	146542	9.360	1.679 - 9	32.40	3.748 +16	878.8	1.950 + 1	4.507 + 1
151000	147496	9.357	1.599	33.00	3.573	886.7	1.875	4.728
152000	148450	9.354	1.524	33.59	3.410	894.5	1.805	4.955
153000	149404	9.351	1.454	34.19	3.256	902.3	1.739	5.188
154000	150357	9.348	1.388	34.78	3.112	910.0	1.676	5.428
155000	151310	9.345	1.326	35.38	2.977	917.6	1.617	5.675
156000	152263	9.342	1.268	35.98	2.850	925.1	1.561	5.928
157000	153216	9.340	1.214	36.57	2.730	932.6	1.507	6.188
158000	154168	9.337	1.162	37.17	2.618	940.1	1.457	6.454
159000	155120	9.334	1.114	37.77	2.511	947.4	1.408	6.727
160000	156071	9.331	1.068 - 9	38.36	2.411 +16	954.7	1.363 + 1	7.007 + 1
161000	157023	9.328	1.025	38.96	2.316	962.0	1.319	7.293
162000	157974	9.325	9.840 -10	39.56	2.227	969.2	1.277	7.587
163000	158924	9.322	9.453	40.16	2.142	976.3	1.238	7.887
164000	159875	9.320	9.087	40.75	2.062	983.4	1.200	8.194
165000	160825	9.317	8.794	41.10	1.998	987.4	1.168	8.456
166000	161775	9.314	8.520	41.40	1.938	990.9	1.137	8.716
167000	162725	9.311	8.256	41.71	1.881	994.4	1.107	8.982
168000	163674	9.308	8.003	42.01	1.826	997.9	1.078	9.253
169000	164623	9.305	7.759	42.32	1.773	1001.	1.051	9.530
170000	165572	9.302	7.524 -10	42.62	1.722 +16	1005.	1.024 + 1	9.813 + 1
171000	166520	9.300	7.298	42.93	1.672	1008.	9.981 + 0	1.010 + 2
172000	167468	9.297	7.080	43.24	1.625	1012.	9.731	1.040
173000	168416	9.294	6.870	43.54	1.579	1015.	9.490	1.070
174000	169364	9.291	6.667	43.85	1.535	1019.	9.256	1.100
175000	170311	9.288	6.479	44.11	1.495	1021.	9.036	1.130
176000	171258	9.285	6.312	44.27	1.458	1023.	8.831	1.158
177000	172205	9.282	6.149	44.43	1.423	1025.	8.633	1.187
178000	173151	9.280	5.990	44.59	1.389	1026.	8.440	1.216
179000	174097	9.277	5.837	44.75	1.356	1028.	8.253	1.246
180000	175043	9.274	5.688 -10	44.91	1.324 +16	1030.	8.070 + 0	1.276 + 2
181000	175988	9.271	5.543	45.07	1.293	1031.	7.893	1.307
182000	176934	9.268	5.402	45.23	1.263	1033.	7.721	1.338
183000	177879	9.265	5.266	45.39	1.233	1035.	7.554	1.370
184000	178823	9.263	5.133	45.55	1.205	1036.	7.392	1.402
185000	179768	9.260	5.004	45.71	1.177	1038.	7.234	1.435
186000	180712	9.257	4.879	45.87	1.150	1040.	7.080	1.469
187000	181656	9.254	4.757	46.03	1.124	1041.	6.930	1.503
188000	182599	9.251	4.639	46.19	1.099	1043.	6.784	1.538
189000	183542	9.248	4.524	46.35	1.074	1045.	6.642	1.573
190000	184485	9.246	4.412 -10	46.51	1.050 +16	1046.	6.503 + 0	1.609 + 2
191000	185428	9.243	4.304	46.67	1.026	1048.	6.368	1.646
192000	186370	9.240	4.198	46.83	1.004	1050.	6.236	1.683
193000	187312	9.237	4.096	46.99	9.813 +15	1051.	6.107	1.722
194000	188254	9.234	3.996	47.13	9.596	1053.	5.981	1.761
195000	189196	9.231	3.899	47.31	9.385	1055.	5.858	1.800
196000	190137	9.229	3.805	47.47	9.179	1056.	5.739	1.841
197000	191078	9.226	3.713	47.63	8.978	1058.	5.622	1.882
198000	192018	9.223	3.624	47.80	8.783	1060.	5.508	1.924
199000	192959	9.220	3.537	47.96	8.592	1061.	5.397	1.966

ALTITUDE		ACCEL. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLL. FREQ.	MEAN FREE PATH	
Z, m	H, m'	g, m sec ⁻²	ω , kg m ⁻³	H _S , km	n, m ⁻³	V, m sec ⁻¹	v, sec ⁻¹	L, m	
200000	193899	9.217	3.452 -10	48.12	8.406 +15	1063.	5.288 + 0	2.010	+ 2
201000	194839	9.215	3.370	48.28	8.225	1064.	5.182	2.054	
202000	195778	9.212	3.290	48.44	8.049	1066.	5.078	2.099	
203000	196717	9.209	3.212	48.60	7.877	1068.	4.977	2.145	
204000	197656	9.206	3.137	48.76	7.709	1069.	4.878	2.192	
205000	198595	9.203	3.063	48.92	7.545	1071.	4.782	2.239	
206000	199533	9.201	2.991	49.08	7.385	1072.	4.688	2.288	
207000	200471	9.198	2.923	49.22	7.233	1074.	4.597	2.336	
208000	201409	9.195	2.857	49.34	7.087	1075.	4.509	2.384	
209000	202346	9.192	2.793	49.46	6.945	1076.	4.423	2.433	
210000	203284	9.189	2.731 -10	49.58	6.805 +15	1077.	4.339 + 0	2.483	+ 2
211000	204220	9.187	2.670	49.69	6.669	1078.	4.256	2.533	
212000	205157	9.184	2.611	49.81	6.536	1079.	4.176	2.585	
213000	206093	9.181	2.553	49.93	6.406	1080.	4.097	2.637	
214000	207030	9.178	2.497	50.05	6.279	1082.	4.019	2.691	
215000	207965	9.175	2.442	50.16	6.154	1083.	3.944	2.745	
216000	208901	9.173	2.388	50.28	6.033	1084.	3.870	2.800	
217000	209836	9.170	2.335	50.40	5.914	1085.	3.797	2.857	
218000	210771	9.167	2.284	50.52	5.798	1086.	3.727	2.914	
219000	211706	9.164	2.234	50.64	5.684	1087.	3.657	2.972	
220000	212640	9.161	2.186 -10	50.75	5.573 +15	1088.	3.589 + 0	3.032	+ 2
221000	213574	9.159	2.138	50.87	5.464	1089.	3.523	3.092	
222000	214508	9.156	2.092	50.99	5.358	1090.	3.458	3.153	
223000	215441	9.153	2.046	51.11	5.253	1091.	3.394	3.216	
224000	216374	9.150	2.002	51.23	5.152	1093.	3.331	3.279	
225000	217307	9.148	1.959	51.34	5.052	1094.	3.270	3.344	
226000	218240	9.145	1.917	51.46	4.955	1095.	3.210	3.410	
227000	219172	9.142	1.876	51.58	4.859	1096.	3.152	3.477	
228000	220104	9.139	1.835	51.70	4.766	1097.	3.094	3.545	
229000	221036	9.136	1.796	51.82	4.675	1098.	3.038	3.614	
230000	221968	9.134	1.758 -10	51.93	4.585 +15	1099.	2.983 + 0	3.685	+ 2
231000	222899	9.131	1.720	52.05	4.498	1100.	2.929	3.756	
232000	223830	9.128	1.684	52.17	4.412	1101.	2.876	3.829	
233000	224761	9.125	1.648	52.29	4.329	1102.	2.824	3.903	
234000	225691	9.123	1.613	52.41	4.247	1103.	2.773	3.978	
235000	226621	9.120	1.579	52.53	4.166	1104.	2.724	4.055	
236000	227551	9.117	1.546	52.64	4.088	1106.	2.675	4.133	
237000	228480	9.114	1.514	52.76	4.011	1107.	2.627	4.212	
238000	229410	9.111	1.482	52.88	3.936	1108.	2.580	4.293	
239000	230339	9.109	1.451	53.00	3.862	1109.	2.534	4.375	
240000	231267	9.106	1.421 -10	53.12	3.790 +15	1110.	2.489 + 0	4.458	+ 2
241000	232196	9.103	1.391	53.24	3.719	1111.	2.445	4.543	
242000	233124	9.100	1.362	53.36	3.650	1112.	2.402	4.629	
243000	234052	9.098	1.334	53.47	3.582	1113.	2.360	4.717	
244000	234979	9.095	1.306	53.59	3.516	1114.	2.318	4.806	
245000	235906	9.092	1.279	53.71	3.451	1115.	2.278	4.896	
246000	236833	9.089	1.253	53.83	3.387	1116.	2.238	4.988	
247000	237760	9.087	1.227	53.95	3.325	1117.	2.199	5.082	
248000	238687	9.084	1.202	54.07	3.264	1118.	2.160	5.177	
249000	239613	9.081	1.178	54.19	3.204	1119.	2.123	5.274	
250000	240539	9.078	1.154 -10	54.31	3.145 +15	1120.	2.086 + 0	5.372	+ 2
251000	241464	9.076	1.130	54.42	3.088	1122.	2.050	5.472	
252000	242390	9.073	1.107	54.54	3.031	1123.	2.014	5.573	
253000	243315	9.070	1.085	54.66	2.976	1124.	1.979	5.677	
254000	244239	9.067	1.063	54.78	2.922	1125.	1.945	5.781	
255000	245164	9.065	1.041	54.90	2.869	1126.	1.912	5.888	
256000	246088	9.062	1.020	55.02	2.817	1127.	1.879	5.996	
257000	247012	9.059	9.997 -11	55.14	2.767	1128.	1.847	6.107	
258000	247936	9.056	9.797	55.26	2.717	1129.	1.815	6.219	
259000	248859	9.054	9.600	55.38	2.668	1130.	1.784	6.332	

ALTITUDE		ACCEL. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLL. FREQ.	MEAN FREE PATH
Z, m	H, m'	g, m sec ⁻²	ω , kg/m ³	H _s , km	n, m ⁻³	\bar{V} , m sec ⁻¹	v, sec ⁻¹	L, m
260000	249782	9.031	9.408	-11	55.50	2.620 +15	1131.	1.754 + 0 6.448 + 2
261000	250705	9.040	9.221		55.62	2.573	1132.	1.724 6.566
262000	251627	9.045	9.037		55.73	2.527	1133.	1.695 6.685
263000	252550	9.045	8.853		55.85	2.482	1134.	1.666 6.806
264000	253472	9.040	8.682		55.97	2.438	1135.	1.638 6.930
265000	254393	9.037	8.5		56.09	2.395	1136.	1.610 7.055
266000	255315	9.035	8.343		56.21	2.352	1137.	1.583 7.182
267000	256236	9.032	8.178		56.33	2.311	1138.	1.557 7.311
268000	257157	9.029	8.017		56.45	2.270	1139.	1.531 7.443
269000	258077	9.026	7.860		56.57	2.230	1140.	1.505 7.576
270000	258998	9.024	7.706	-11	56.69	2.191 +15	1141.	1.480 + 0 7.712 + 2
271000	259918	9.021	7.556		56.81	2.152	1142.	1.455 7.850
272000	260837	9.018	7.408		56.93	2.114	1143.	1.431 7.990
273000	261757	9.015	7.264		57.05	2.078	1144.	1.407 8.132
274000	262676	9.013	7.123		57.17	2.041	1145.	1.384 8.277
275000	263595	9.010	6.985		57.29	2.006	1146.	1.361 8.423
276000	264513	9.007	6.850		57.41	1.971	1148.	1.339 8.573
277000	265432	9.005	6.718		57.53	1.937	1149.	1.317 8.724
278000	266350	9.002	6.589		57.65	1.903	1150.	1.295 8.878
279000	267268	8.999	6.462		57.77	1.870	1151.	1.274 9.034
280000	268185	8.996	6.338	-11	57.89	1.838 +15	1152.	1.253 + 0 9.193 + 2
281000	269102	8.994	6.217		58.01	1.806	1153.	1.232 9.354
282000	270019	8.991	6.098		58.13	1.775	1154.	1.212 9.518
283000	270936	8.988	5.982		58.25	1.745	1155.	1.192 9.684
284000	271853	8.986	5.868		58.37	1.715	1156.	1.173 9.853
285000	272769	8.983	5.757		58.49	1.685	1157.	1.154 1.002 + 3
286000	273685	8.980	5.647		58.61	1.657	1158.	1.135 1.020
287000	274600	8.977	5.541		58.73	1.628	1159.	1.117 1.038
288000	275515	8.975	5.436		58.85	1.601	1160.	1.099 1.056
289000	276430	8.972	5.334		58.97	1.573	1161.	1.081 1.074
290000	277345	8.969	5.233	-11	59.09	1.547 +15	1162.	1.064 + 0 1.092 + 3
291000	278260	8.967	5.135		59.21	1.521	1163.	1.046 1.111
292000	279174	8.964	5.039		59.33	1.495	1164.	1.030 1.130
293000	280088	8.961	4.945		59.45	1.470	1165.	1.013 1.150
294000	281001	8.959	4.853		59.57	1.445	1166.	9.970 - 1 1.169
295000	281915	8.956	4.762		59.69	1.421	1167.	9.810 1.189
296000	282828	8.953	4.674		59.81	1.397	1168.	9.654 1.210
297000	283741	8.951	4.587		59.93	1.373	1169.	9.500 1.230
298000	284653	8.948	4.502		60.05	1.350	1170.	9.350 1.251
299000	285566	8.945	4.419		60.17	1.328	1171.	9.201 1.272
300000	286478	8.942	4.338	-11	60.29	1.306 +15	1172.	9.056 - 1 1.294 + 3
302000	288301	8.937	4.180		60.53	1.263	1174.	8.772 1.338
304000	290123	8.932	4.028		60.77	1.221	1176.	8.498 1.384
306000	291944	8.926	3.883		61.02	1.181	1178.	8.234 1.430
308000	293764	8.921	3.743		61.26	1.143	1180.	7.978 1.479
310000	295583	8.916	3.609		61.50	1.105	1182.	7.731 1.528
312000	297400	8.910	3.480		61.74	1.070	1184.	7.493 1.580
314000	299217	8.905	3.356		61.98	1.035	1186.	7.263 1.632
316000	301033	8.900	3.237		62.23	1.002	1188.	7.041 1.687
318000	302847	8.894	3.122		62.47	9.695 +14	1189.	6.826 1.743
320000	304661	8.889	3.013	-11	62.71	9.385 +14	1191.	6.618 - 1 1.800 + 3
322000	306473	8.884	2.907		62.95	9.085	1193.	6.418 1.860
324000	308284	8.878	2.805		63.20	8.797	1195.	6.224 1.921
326000	310094	8.873	2.708		63.44	8.518	1197.	6.036 1.983
328000	311903	8.868	2.614		63.68	8.249	1199.	5.855 2.048
330000	313711	8.862	2.524		63.92	7.989	1201.	5.680 2.115
332000	315518	8.857	2.437		64.17	7.738	1203.	5.510 2.183
334000	317324	8.852	2.353		64.41	7.496	1205.	5.346 2.254
336000	319129	8.846	2.273		64.65	7.262	1207.	5.188 2.326
338000	320932	8.841	2.195		64.90	7.036	1209.	5.034 2.401

ALTITUDE		ACCEL. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLL. FREQ.	MEAN FREE PATH				
Z, m	H, m'	$g, m \text{ sec}^{-2}$	$\omega, \text{kgf m}^{-3}$	H_g, km	n, m^{-3}	$\bar{V}, \text{m sec}^{-1}$	ν, sec^{-1}	L, m				
340000	322735	8.836	2.121	-11	65.14	6.818	+14	1211.	4.886	-1	2.478	+3
342000	324736	8.831	2.049		65.39	6.607		1213.	4.742		2.557	
344000	326337	8.825	1.980		65.63	6.404		1214.	4.603		2.628	
346000	328136	8.820	1.914		65.87	6.207		1216.	4.469		2.722	
348000	329934	8.815	1.850		66.12	6.017		1218.	4.339		2.808	
350000	331731	8.810	1.788		66.36	5.834		1220.	4.213		2.896	
352000	333527	8.804	1.729		66.61	5.656		1222.	4.091		2.987	
354000	335322	8.799	1.672		66.85	5.485		1224.	3.973		3.080	
356000	337116	8.794	1.616		67.10	5.319		1226.	3.859		3.176	
358000	338909	8.789	1.563		67.34	5.158		1228.	3.748		3.275	
360000	340701	8.783	1.512	-11	67.59	5.003	+14	1229.	3.641	-1	3.377	+3
362000	342492	8.778	1.463		67.83	4.853		1231.	3.537		3.481	
364000	344282	8.773	1.415		68.08	4.708		1233.	3.437		3.588	
366000	346070	8.768	1.370		68.32	4.568		1235.	3.340		3.698	
368000	347858	8.762	1.325		68.57	4.433		1237.	3.245		3.811	
370000	349644	8.757	1.283		68.81	4.301		1239.	3.154		3.928	
372000	351430	8.752	1.242		69.06	4.174		1241.	3.065		4.047	
374000	353214	8.747	1.202		69.31	4.052		1242.	2.980		4.170	
376000	354997	8.742	1.164		69.55	3.933		1244.	2.896		4.296	
378000	356780	8.736	1.127		69.80	3.818		1246.	2.816		4.425	
380000	358561	8.731	1.091	-11	70.04	3.706	+14	1248.	2.738	-1	4.558	+3
382000	360341	8.726	1.057		70.29	3.599		1250.	2.662		4.695	
384000	362120	8.721	1.024		70.54	3.494		1252.	2.589		4.835	
386000	363898	8.716	9.915	-12	70.78	3.393		1253.	2.517		4.979	
388000	365675	8.710	9.606		71.03	3.296		1255.	2.448		5.127	
390000	367451	8.705	9.307		71.28	3.201		1257.	2.382		5.278	
392000	369226	8.700	9.019		71.53	3.109		1259.	2.317		5.434	
394000	371000	8.695	8.740		71.77	3.020		1261.	2.254		5.594	
396000	372772	8.690	8.471		72.02	2.934		1262.	2.193		5.758	
398000	374544	8.685	8.211		72.27	2.851		1264.	2.133		5.926	
400000	376315	8.680	7.960	-12	72.52	2.770	+14	1266.	2.076	-1	6.098	+3
402000	378084	8.674	7.718		72.76	2.692		1268.	2.020		6.276	
404000	379853	8.669	7.483		73.01	2.616		1270.	1.966		6.457	
406000	381621	8.664	7.257		73.26	2.543		1271.	1.914		6.644	
408000	383387	8.659	7.038		73.51	2.472		1273.	1.863		6.835	
410000	385152	8.654	6.826		73.76	2.403		1275.	1.813		7.031	
412000	386917	8.649	6.622		74.01	2.336		1277.	1.765		7.232	
414000	388680	8.644	6.424		74.25	2.271		1278.	1.719		7.439	
416000	390442	8.639	6.232		74.50	2.208		1280.	1.673		7.650	
418000	392204	8.633	6.047		74.75	2.147		1282.	1.629		7.867	
420000	393964	8.628	5.868	-12	75.00	2.088	+14	1284.	1.587	-1	8.090	+3
422000	395723	8.623	5.695		75.25	2.031		1285.	1.545		8.318	
424000	397481	8.618	5.528		75.50	1.976		1287.	1.505		8.552	
426000	399238	8.613	5.366		75.75	1.922		1289.	1.466		8.791	
428000	400994	8.608	5.209		76.00	1.870		1291.	1.428		9.037	
430000	402749	8.603	5.057		76.25	1.819		1292.	1.391		9.289	
432000	404503	8.598	4.911		76.50	1.770		1294.	1.356		9.547	
434000	406256	8.593	4.769		76.75	1.722		1296.	1.321		9.811	
436000	408008	8.588	4.631		77.00	1.676		1298.	1.287		1.008	+4
438000	409759	8.583	4.496		77.25	1.631		1299.	1.254		1.036	
440000	411509	8.578	4.369	-12	77.50	1.587	+14	1301.	1.222	-1	1.064	+4
442000	413258	8.573	4.244		77.75	1.545		1303.	1.191		1.094	
444000	415006	8.568	4.123		78.00	1.504		1305.	1.161		1.123	
446000	416752	8.562	4.006		78.25	1.464		1306.	1.132		1.154	
448000	418498	8.557	3.893		78.50	1.425		1308.	1.103		1.185	
450000	420243	8.552	3.783		78.75	1.388		1310.	1.076		1.217	
452000	421987	8.547	3.676		79.01	1.351		1311.	1.049		1.250	
454000	423729	8.542	3.573		79.26	1.316		1313.	1.023		1.284	
456000	425471	8.537	3.473		79.51	1.281		1315.	9.973	-2	1.318	
458000	427211	8.532	3.376		79.76	1.248		1316.	9.725		1.354	

ALTITUDE		ACCEL. OF GRAV.	SPECIFIC WEIGHT		SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLL. FREQ.	MEAN FREE PATH
Z, m	H, m'	g, m sec ⁻²	$\omega, \text{kgf m}^{-3}$		H _s , km	n, m ⁻³	$\bar{V}, \text{m sec}^{-1}$	v, sec ⁻¹	L, m
460000	428951	8.527	3.283	-12	80.01	1.216 +14	1318.	9.485 - 2	1.390 + 4
462000	430690	8.522	3.192		80.26	1.184	1320.	9.251	1.427
464000	432427	8.517	3.103		80.52	1.154	1321.	9.023	1.465
466000	434164	8.512	3.018		80.77	1.124	1323.	8.802	1.503
468000	435899	8.507	2.935		81.02	1.095	1325.	8.587	1.543
470000	437634	8.502	2.855		81.27	1.067	1327.	8.377	1.584
472000	439367	8.497	2.777		81.53	1.040	1328.	8.173	1.625
474000	441100	8.492	2.701		81.78	1.013	1330.	7.975	1.668
476000	442831	8.487	2.628		82.03	9.874 +13	1332.	7.782	1.711
478000	444562	8.482	2.557		82.28	9.624	1333.	7.594	1.756
480000	446291	8.477	2.488	-12	82.54	9.380 +13	1335.	7.411 - 2	1.801 + 4
482000	448019	8.472	2.421		82.79	9.144	1336.	7.234	1.848
484000	449747	8.468	2.356		83.04	8.914	1338.	7.060	1.895
486000	451473	8.463	2.293		83.30	8.691	1340.	6.892	1.944
488000	453199	8.458	2.232		83.55	8.473	1341.	6.728	1.994
490000	454923	8.453	2.173		83.81	8.262	1343.	6.568	2.045
492000	456646	8.448	2.115		84.06	8.057	1345.	6.413	2.097
494000	458369	8.443	2.059		84.31	7.857	1346.	6.261	2.150
496000	460090	8.438	2.005		84.57	7.663	1348.	6.114	2.203
498000	461810	8.433	1.952		84.82	7.474	1350.	5.970	2.261
500000	463530	8.428	1.901	-12	85.08	7.290 +13	1351.	5.830 - 2	2.318 + 4
502000	465248	8.423	1.852		85.33	7.111	1353.	5.694	2.376
504000	466965	8.418	1.803		85.59	6.937	1355.	5.562	2.435
506000	468682	8.413	1.757		85.84	6.768	1356.	5.432	2.496
508000	470397	8.408	1.711		86.10	6.603	1358.	5.307	2.559
510000	472111	8.403	1.667		86.35	6.443	1359.	5.184	2.622
512000	473825	8.399	1.624		86.61	6.287	1361.	5.064	2.687
514000	475537	8.394	1.582		86.86	6.135	1363.	4.948	2.754
516000	477248	8.389	1.542		87.12	5.987	1364.	4.835	2.822
518000	478959	8.384	1.502		87.37	5.844	1366.	4.724	2.891
520000	480668	8.379	1.464	-12	87.63	5.704 +13	1367.	4.616 - 2	2.962 + 4
522000	482376	8.374	1.427		87.89	5.567	1369.	4.511	3.035
524000	484084	8.369	1.391		88.14	5.435	1371.	4.409	3.109
526000	485790	8.364	1.356		88.40	5.306	1372.	4.309	3.184
528000	487495	8.360	1.322		88.65	5.180	1374.	4.212	3.262
530000	489200	8.355	1.289		88.91	5.057	1375.	4.117	3.341
532000	490905	8.350	1.256		89.17	4.938	1377.	4.025	3.421
534000	492606	8.345	1.225		89.42	4.822	1379.	3.935	3.504
536000	494307	8.340	1.194		89.68	4.709	1380.	3.847	3.588
538000	496007	8.335	1.165		89.94	4.599	1382.	3.761	3.674
540000	497707	8.330	1.136	-12	90.19	4.492 +13	1383.	3.677 - 2	3.761 + 4
542000	499405	8.326	1.108		90.45	4.387	1385.	3.596	3.851
544000	501103	8.321	1.081		90.71	4.285	1386.	3.517	3.942
546000	502799	8.316	1.054		90.97	4.186	1388.	3.439	4.036
548000	504495	8.311	1.028		91.22	4.089	1390.	3.363	4.131
550000	506189	8.306	1.003		91.48	3.995	1391.	3.290	4.229
552000	507883	8.302	9.788	-13	91.74	3.904	1393.	3.218	4.328
554000	509575	8.297	9.550		92.00	3.814	1394.	3.147	4.429
556000	511267	8.292	9.319		92.26	3.727	1396.	3.079	4.533
558000	512957	8.287	9.094		92.52	3.642	1397.	3.012	4.639
560000	514647	8.282	8.875	-13	92.77	3.559 +13	1399.	2.947 - 2	4.747 + 4
562000	516336	8.278	8.662		93.03	3.479	1400.	2.883	4.857
564000	518023	8.273	8.454		93.29	3.400	1402.	2.821	4.969
566000	519710	8.268	8.252		93.55	3.323	1405.	2.761	5.084
568000	521396	8.263	8.056		93.81	3.248	1407.	2.701	5.201
570000	523080	8.258	7.864		94.07	3.176	1408.	2.644	5.320
572000	524764	8.254	7.678		94.33	3.104	1410.	2.587	5.442
574000	526447	8.249	7.497		94.59	3.035	1411.	2.532	5.566
576000	528129	8.244	7.320		94.85	2.968	1413.	2.479	5.693
578000	529810	8.239	7.148		95.11	2.902		2.426	5.823

ALTITUDE		ACCEL. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLL. FREQ.	MEAN FREE PATH	
Z, m	H, m'	g, m sec ⁻²	ω , kg/ m ⁻³	H _g , km	n, m ⁻³	V, m sec ⁻¹	v, sec ⁻¹	L, m	
580000	531489	8.235	6.980	-13	95.37	2.837 +13	1414.	2.375 - 2	5.955 + 4
582000	533168	8.230	6.817		95.63	2.775	1416.	2.325	6.089
584000	534846	8.225	6.658		95.89	2.713	1417.	2.276	6.226
586000	536523	8.220	6.503		96.15	2.654	1419.	2.228	6.366
588000	538199	8.216	6.352		96.41	2.595	1420.	2.182	6.509
590000	539874	8.211	6.205		96.67	2.539	1422.	2.136	6.655
592000	541548	8.206	6.062		96.93	2.483	1423.	2.092	6.803
594000	543221	8.201	5.922		97.19	2.429	1425.	2.049	6.955
596000	544893	8.197	5.786		97.45	2.376	1426.	2.006	7.109
598000	546565	8.192	5.654		97.71	2.325	1428.	1.965	7.267
600000	548235	8.187	5.525	-13	97.97	2.275 +13	1429.	1.924 - 2	7.427 + 4
602000	549904	8.183	5.399		98.23	2.226	1431.	1.885	7.591
604000	551572	8.178	5.276		98.50	2.178	1432.	1.846	7.758
606000	553240	8.173	5.156		98.76	2.131	1434.	1.808	7.928
608000	554906	8.168	5.040		99.02	2.085	1435.	1.772	8.101
610000	556571	8.164	4.926		99.28	2.041	1437.	1.736	8.278
612000	558236	8.159	4.815		99.54	1.997	1438.	1.700	8.458
614000	559899	8.154	4.707		99.81	1.955	1440.	1.666	8.642
616000	561562	8.150	4.602		100.1	1.914	1441.	1.632	8.829
618000	563224	8.145	4.499		100.3	1.873	1443.	1.599	9.019
620000	564884	8.140	4.399	-13	100.6	1.834 +13	1444.	1.567 - 2	9.214 + 4
622000	566544	8.136	4.301		100.9	1.795	1445.	1.536	9.412
624000	568203	8.131	4.206		101.1	1.757	1447.	1.505	9.613
626000	569860	8.126	4.113		101.4	1.721	1448.	1.475	9.819
628000	571517	8.122	4.022		101.6	1.685	1450.	1.446	1.003 + 5
630000	573173	8.117	3.934		101.9	1.650	1451.	1.417	1.024
632000	574828	8.112	3.847		102.2	1.615	1453.	1.389	1.046
634000	576482	8.108	3.763		102.4	1.582	1454.	1.362	1.068
636000	578135	8.103	3.681		102.7	1.549	1456.	1.335	1.091
638000	579787	8.098	3.601		103.0	1.517	1457.	1.309	1.114
640000	581438	8.094	3.523	-13	103.2	1.486 +13	1459.	1.283 - 2	1.137 + 5
642000	583088	8.089	3.446		103.5	1.455	1460.	1.258	1.161
644000	584738	8.085	3.372		103.8	1.426	1462.	1.233	1.185
646000	586386	8.080	3.299		104.0	1.396	1463.	1.209	1.210
648000	588033	8.075	3.228		104.3	1.368	1464.	1.186	1.235
650000	589680	8.071	3.159		104.5	1.340	1466.	1.163	1.261
652000	591325	8.066	3.091		104.8	1.313	1467.	1.140	1.287
654000	592970	8.061	3.025		105.1	1.286	1469.	1.118	1.313
656000	594613	8.057	2.961		105.3	1.260	1470.	1.097	1.340
658000	596256	8.052	2.898		105.6	1.235	1472.	1.076	1.368
660000	597898	8.048	2.837	-13	105.9	1.210 +13	1473.	1.055 - 2	1.396 + 5
662000	599538	8.043	2.777		106.1	1.186	1474.	1.035	1.425
664000	601178	8.038	2.718		106.4	1.162	1476.	1.015	1.454
666000	602817	8.034	2.661		106.7	1.139	1477.	9.959 - 3	1.483
668000	604455	8.029	2.605		106.9	1.116	1479.	9.770	1.513
670000	606092	8.025	2.551		107.2	1.094	1480.	9.585	1.544
672000	607728	8.020	2.497		107.5	1.072	1481.	9.404	1.575
674000	609363	8.016	2.445		107.7	1.051	1483.	9.227	1.607
676000	610998	8.011	2.394		108.0	1.031	1484.	9.054	1.639
678000	612631	8.006	2.345		108.3	1.010	1486.	8.884	1.672
680000	614263	8.002	2.296	-13	108.5	9.904 +12	1487.	8.718 - 3	1.706 + 5
682000	615895	7.997	2.249		108.8	9.710	1489.	8.555	1.740
684000	617525	7.993	2.202		109.1	9.520	1490.	8.396	1.775
686000	619155	7.988	2.157		109.3	9.335	1491.	8.240	1.810
688000	620784	7.984	2.113		109.6	9.153	1493.	8.087	1.846
690000	622411	7.979	2.070		109.9	8.975	1494.	7.938	1.882
692000	624038	7.975	2.028		110.1	8.802	1496.	7.791	1.920
694000	625664	7.970	1.986		110.4	8.632	1497.	7.648	1.957
696000	627289	7.966	1.946		110.7	8.465	1498.	7.507	1.996
698000	628913	7.961	1.907		110.9	8.302	1500.	7.370	2.035
700000	630536	7.957	1.868	-13	111.2	8.143 +12	1501.	7.235 - 3	2.075 + 5

TABLE IC

**ATMOSPHERIC PROPERTIES AS A FUNCTION OF ALTITUDE,
METRIC UNITS**

Sound Speed, Viscosity, Kinematic Viscosity, and Thermal Conductivity

NOTE: A one- or two-digit number (preceded by a plus or minus sign) following the initial entry of each block indicates the power of 10 by which that entry and each succeeding entry of that block should be multiplied. A change of power occurring within a block is indicated by a similar notation.

ALTITUDE		SOUND SPEED	COEF. OF VISCOSITY	KIN. VISCOSITY	THERMAL CONDUCT.
Z, m	H, m'	$C_s, \text{m sec}^{-1}$	$\mu, \text{kg m}^{-1} \text{sec}^{-1}$	$\eta, \text{m}^2 \text{sec}^{-1}$	$k, \text{kg cal m}^{-1} \text{sec}^{-1} (^\circ\text{K})^{-1}$
- 5000	- 5004	358.98	1.9423	- 5 1.0066 - 5	6.6546 - 6
- 4900	- 4904	358.62	1.9393	1.0129	6.6428
- 4800	- 4804	358.25	1.9363	1.0202	6.6309
- 4700	- 4703	357.89	1.9333	1.0275	6.6191
- 4600	- 4603	357.52	1.9303	1.0349	6.6072
- 4500	- 4503	357.16	1.9273	1.0423	6.5953
- 4400	- 4403	356.79	1.9243	1.0498	6.5834
- 4300	- 4303	356.42	1.9213	1.0574	6.5715
- 4200	- 4203	356.06	1.9183	1.0650	6.5596
- 4100	- 4103	355.69	1.9153	1.0728	6.5477
- 4000	- 4003	355.32	1.9123	- 5 1.0806 - 5	6.5358 - 6
- 3900	- 3902	354.95	1.9093	1.0884	6.5239
- 3800	- 3802	354.58	1.9063	1.0963	6.5120
- 3700	- 3702	354.22	1.9033	1.1044	6.5000
- 3600	- 3602	353.85	1.9003	1.1124	6.4881
- 3500	- 3502	353.48	1.8972	1.1206	6.4761
- 3400	- 3402	353.11	1.8942	1.1288	6.4642
- 3300	- 3302	352.74	1.8912	1.1371	6.4522
- 3200	- 3202	352.37	1.8881	1.1455	6.4402
- 3100	- 3102	351.99	1.8851	1.1540	6.4283
- 3000	- 3001	351.62	1.8821	- 5 1.1625 - 5	6.4163 - 6
- 2900	- 2901	351.25	1.8790	1.1712	6.4043
- 2800	- 2801	350.88	1.8760	1.1799	6.3923
- 2700	- 2701	350.51	1.8729	1.1887	6.3803
- 2600	- 2601	350.13	1.8699	1.1975	6.3682
- 2500	- 2501	349.76	1.8668	1.2065	6.3562
- 2400	- 2401	349.39	1.8638	1.2155	6.3442
- 2300	- 2301	349.01	1.8607	1.2246	6.3321
- 2200	- 2201	348.64	1.8576	1.2339	6.3201
- 2100	- 2101	348.26	1.8546	1.2432	6.3080
- 2000	- 2001	347.89	1.8515	- 5 1.2526 - 5	6.2960 - 6
- 1900	- 1901	347.51	1.8484	1.2620	6.2839
- 1800	- 1801	347.13	1.8454	1.2716	6.2718
- 1700	- 1700	346.76	1.8423	1.2813	6.2598
- 1600	- 1600	346.38	1.8392	1.2910	6.2477
- 1500	- 1500	346.00	1.8361	1.3009	6.2356
- 1400	- 1400	345.62	1.8330	1.3108	6.2235
- 1300	- 1300	345.25	1.8299	1.3209	6.2114
- 1200	- 1200	344.87	1.8268	1.3310	6.1992
- 1100	- 1100	344.49	1.8237	1.3412	6.1871
- 1000	- 1000	344.11	1.8206	- 5 1.3516 - 5	6.1750 - 6
- 900	- 900	343.73	1.8175	1.3620	6.1628
- 800	- 800	343.35	1.8144	1.3726	6.1507
- 700	- 700	342.97	1.8113	1.3832	6.1385
- 600	- 600	342.59	1.8082	1.3940	6.1264
- 500	- 500	342.21	1.8051	1.4048	6.1142
- 400	- 400	341.82	1.8019	1.4158	6.1020
- 300	- 300	341.44	1.7988	1.4269	6.0898
- 200	- 200	341.06	1.7957	1.4380	6.0776
- 100	- 100	340.68	1.7926	1.4493	6.0654
0	0	340.29	1.7894	- 5 1.4607 - 5	6.0532 - 6
100	100	339.91	1.7863	1.4723	6.0410
200	200	339.52	1.7831	1.4839	6.0288
300	300	339.14	1.7800	1.4957	6.0165
400	400	338.75	1.7769	1.5075	6.0043
500	500	338.37	1.7737	1.5195	5.9921
600	600	337.98	1.7706	1.5316	5.9798
700	700	337.60	1.7674	1.5439	5.9676
800	800	337.21	1.7642	1.5562	5.9553
900	900	336.82	1.7611	1.5687	5.9430

ALTITUDE		SOUND SPEED	COEF. OF VISCOSITY	KIN. VISCOSITY	THERMAL CONDUCT.
Z, m	H, m'	$C_s, m \text{ sec}^{-1}$	$\mu, \text{kg m}^{-1} \text{ sec}^{-1}$	$\eta, \text{m}^2 \text{ sec}^{-1}$	$k, \text{kcal m}^{-1} \text{ sec}^{-1} (^\circ\text{K})^{-1}$
1000	1000	336.43	1.7579 - 5	1.5813 - 5	5.9307 - 6
1100	1100	336.04	1.7547	1.5941	5.9184
1200	1200	335.66	1.7516	1.6069	5.9061
1300	1300	335.27	1.7484	1.6199	5.8938
1400	1400	334.88	1.7452	1.6331	5.8815
1500	1500	334.49	1.7420	1.6463	5.8692
1600	1600	334.10	1.7388	1.6597	5.8569
1700	1700	333.71	1.7356	1.6733	5.8445
1800	1799	333.31	1.7324	1.6870	5.8322
1900	1899	332.92	1.7292	1.7008	5.8198
2000	1999	332.53	1.7260 - 5	1.7148 - 5	5.8075 - 6
2100	2099	332.14	1.7228	1.7289	5.7951
2200	2199	331.74	1.7196	1.7432	5.7827
2300	2299	331.35	1.7164	1.7576	5.7704
2400	2399	330.96	1.7132	1.7722	5.7580
2500	2499	330.56	1.7100	1.7869	5.7456
2600	2599	330.17	1.7067	1.8018	5.7332
2700	2699	329.77	1.7035	1.8168	5.7208
2800	2799	329.38	1.7003	1.8320	5.7084
2900	2899	328.98	1.6971	1.8473	5.6959
3000	2999	328.58	1.6938 - 5	1.8629 - 5	5.6835 - 6
3100	3098	328.18	1.6906	1.8785	5.6711
3200	3198	327.79	1.6873	1.8944	5.6586
3300	3298	327.39	1.6841	1.9104	5.6461
3400	3398	326.99	1.6808	1.9266	5.6337
3500	3498	326.59	1.6776	1.9430	5.6212
3600	3598	326.19	1.6743	1.9595	5.6087
3700	3698	325.79	1.6711	1.9762	5.5963
3800	3798	325.39	1.6678	1.9931	5.5838
3900	3898	324.99	1.6645	2.0102	5.5713
4000	3997	324.59	1.6612 - 5	2.0275 - 5	5.5587 - 6
4100	4097	324.19	1.6580	2.0450	5.5462
4200	4197	323.78	1.6547	2.0626	5.5337
4300	4297	323.38	1.6514	2.0805	5.5212
4400	4397	322.98	1.6481	2.0985	5.5086
4500	4497	322.57	1.6448	2.1168	5.4961
4600	4597	322.17	1.6415	2.1352	5.4835
4700	4697	321.76	1.6382	2.1539	5.4710
4800	4796	321.36	1.6349	2.1727	5.4584
4900	4896	320.95	1.6316	2.1918	5.4458
5000	4996	320.54	1.6283 - 5	2.2111 - 5	5.4332 - 6
5100	5096	320.14	1.6250	2.2306	5.4207
5200	5196	319.73	1.6217	2.2503	5.4081
5300	5296	319.32	1.6183	2.2702	5.3955
5400	5395	318.91	1.6150	2.2904	5.3828
5500	5495	318.50	1.6117	2.3108	5.3702
5600	5595	318.09	1.6084	2.3314	5.3576
5700	5695	317.68	1.6050	2.3522	5.3449
5800	5795	317.27	1.6017	2.3733	5.3323
5900	5895	316.86	1.5983	2.3947	5.3197
6000	5994	316.45	1.5950 - 5	2.4162 - 5	5.3070 - 6
6100	6094	316.04	1.5916	2.4381	5.2943
6200	6194	315.63	1.5883	2.4601	5.2817
6300	6294	315.21	1.5849	2.4824	5.2690
6400	6394	314.80	1.5815	2.5050	5.2563
6500	6493	314.38	1.5782	2.5279	5.2436
6600	6593	313.97	1.5748	2.5510	5.2309
6700	6693	313.55	1.5714	2.5744	5.2182
6800	6793	313.14	1.5680	2.5980	5.2054
6900	6893	312.72	1.5647	2.6219	5.1927

ALTITUDE		SOUND SPEED	COEF. OF VISCOSITY	KIN. VISCOSITY	THERMAL CONDUCT.
Z, m	H, m'	$C_s, m \cdot sec^{-1}$	$\mu, kg \cdot m^{-1} \cdot sec^{-1}$	$\eta, m^2 \cdot sec^{-1}$	$k, kg \cdot cal \cdot m^{-1} \cdot sec^{-1} (^\circ K)^{-1}$
7000	6992	312.30	1.5613 - 5	2.6462 - 5	5.1800 - 6
7100	7092	311.89	1.5579	2.6706	5.1672
7200	7192	311.47	1.5545	2.6954	5.1545
7300	7292	311.05	1.5511	2.7205	5.1417
7400	7391	310.63	1.5477	2.7459	5.1290
7500	7491	310.21	1.5443	2.7715	5.1162
7600	7591	309.79	1.5409	2.7975	5.1034
7700	7691	309.37	1.5374	2.8238	5.0906
7800	7790	308.95	1.5340	2.8504	5.0778
7900	7890	308.53	1.5306	2.8773	5.0650
8000	7990	308.10	1.5272 - 5	2.9046 - 5	5.0522 - 6
8100	8090	307.68	1.5237	2.9321	5.0394
8200	8189	307.26	1.5203	2.9600	5.0266
8300	8289	306.83	1.5169	2.9883	5.0137
8400	8389	306.41	1.5134	3.0169	5.0009
8500	8489	305.98	1.5100	3.0458	4.9880
8600	8588	305.56	1.5065	3.0751	4.9752
8700	8688	305.13	1.5031	3.1047	4.9623
8800	8788	304.70	1.4996	3.1347	4.9495
8900	8888	304.28	1.4961	3.1651	4.9366
9000	8987	303.85	1.4927 - 5	3.1958 - 5	4.9237 - 6
9100	9087	303.42	1.4892	3.2270	4.9108
9200	9187	302.99	1.4857	3.2585	4.8979
9300	9286	302.56	1.4822	3.2904	4.8850
9400	9386	302.13	1.4787	3.3227	4.8721
9500	9486	301.70	1.4752	3.3554	4.8591
9600	9586	301.27	1.4717	3.3885	4.8462
9700	9685	300.83	1.4682	3.4221	4.8333
9800	9785	300.40	1.4647	3.4560	4.8203
9900	9885	299.97	1.4612	3.4904	4.8074
10000	9984	299.53	1.4577 - 5	3.5253 - 5	4.7944 - 6
10100	10084	299.10	1.4542	3.5605	4.7815
10200	10184	298.66	1.4507	3.5962	4.7685
10300	10283	298.22	1.4472	3.6324	4.7555
10400	10383	297.79	1.4436	3.6690	4.7425
10500	10483	297.35	1.4401	3.7061	4.7295
10600	10582	296.91	1.4365	3.7437	4.7165
10700	10682	296.47	1.4330	3.7818	4.7035
10800	10782	296.03	1.4295	3.8204	4.6905
10900	10881	295.59	1.4259	3.8594	4.6774
11000	10981	295.15	1.4223 - 5	3.8990 - 5	4.6644 - 6
11100	11081	295.07	1.4217	3.9566	4.6619
11200	11180	295.07	1.4217	4.0193	4.6619
11300	11280	295.07	1.4217	4.0829	4.6619
11400	11380	295.07	1.4217	4.1476	4.6619
11500	11479	295.07	1.4217	4.2133	4.6619
11600	11579	295.07	1.4217	4.2800	4.6619
11700	11679	295.07	1.4217	4.3478	4.6619
11800	11778	295.07	1.4217	4.4166	4.6619
11900	11878	295.07	1.4217	4.4865	4.6619
12000	11977	295.07	1.4217 - 5	4.5576 - 5	4.6619 - 6
12100	12077	295.07	1.4217	4.6297	4.6619
12200	12177	295.07	1.4217	4.7030	4.6619
12300	12276	295.07	1.4217	4.7775	4.6619
12400	12376	295.07	1.4217	4.8531	4.6619
12500	12475	295.07	1.4217	4.9300	4.6619
12600	12575	295.07	1.4217	5.0080	4.6619
12700	12675	295.07	1.4217	5.0873	4.6619
12800	12774	295.07	1.4217	5.1678	4.6619
12900	12874	295.07	1.4217	5.2496	4.6619

ALTITUDE		SOUND SPEED	COEF. OF VISCOSITY	KIN. VISCOSITY	THERMAL CONDUCT.
Z, m	H, m'	$C_s, \text{m sec}^{-1}$	$\mu, \text{kg m}^{-1} \text{sec}^{-1}$	$\eta, \text{m}^2 \text{sec}^{-1}$	$k, \text{kcal m}^{-1} \text{sec}^{-1} (^\circ\text{K})^{-1}$
13000	12973	295.07	1.4217 - 5	5.3327 - 5	4.6619 - 6
13100	13073	295.07	1.4217	5.4171	4.6619
13200	13173	295.07	1.4217	5.5029	4.6619
13300	13272	295.07	1.4217	5.5900	4.6619
13400	13372	295.07	1.4217	5.6784	4.6619
13500	13471	295.07	1.4217	5.7683	4.6619
13600	13571	295.07	1.4217	5.8596	4.6619
13700	13671	295.07	1.4217	5.9523	4.6619
13800	13770	295.07	1.4217	6.0465	4.6619
13900	13870	295.07	1.4217	6.1422	4.6619
14000	13969	295.07	1.4217 - 5	6.2394 - 5	4.6619 - 6
14100	14069	295.07	1.4217	6.3381	4.6619
14200	14168	295.07	1.4217	6.4384	4.6619
14300	14268	295.07	1.4217	6.5403	4.6619
14400	14367	295.07	1.4217	6.6437	4.6619
14500	14467	295.07	1.4217	6.7489	4.6619
14600	14567	295.07	1.4217	6.8556	4.6619
14700	14666	295.07	1.4217	6.9641	4.6619
14800	14766	295.07	1.4217	7.0743	4.6619
14900	14865	295.07	1.4217	7.1862	4.6619
15000	14965	295.07	1.4217 - 5	7.2998 - 5	4.6619 - 6
15100	15064	295.07	1.4217	7.4153	4.6619
15200	15164	295.07	1.4217	7.5326	4.6619
15300	15263	295.07	1.4217	7.6518	4.6619
15400	15363	295.07	1.4217	7.7728	4.6619
15500	15462	295.07	1.4217	7.8957	4.6619
15600	15562	295.07	1.4217	8.0206	4.6619
15700	15661	295.07	1.4217	8.1474	4.6619
15800	15761	295.07	1.4217	8.2763	4.6619
15900	15860	295.07	1.4217	8.4072	4.6619
16000	15960	295.07	1.4217 - 5	8.5401 - 5	4.6619 - 6
16100	16059	295.07	1.4217	8.6752	4.6619
16200	16159	295.07	1.4217	8.8124	4.6619
16300	16258	295.07	1.4217	8.9517	4.6619
16400	16358	295.07	1.4217	9.0932	4.6619
16500	16457	295.07	1.4217	9.2370	4.6619
16600	16557	295.07	1.4217	9.3831	4.6619
16700	16656	295.07	1.4217	9.5314	4.6619
16800	16756	295.07	1.4217	9.6821	4.6619
16900	16855	295.07	1.4217	9.8352	4.6619
17000	16955	295.07	1.4217 - 5	9.9906 - 5	4.6619 - 6
17100	17054	295.07	1.4217	1.0149 - 4	4.6619
17200	17154	295.07	1.4217	1.0309	4.6619
17300	17253	295.07	1.4217	1.0472	4.6619
17400	17353	295.07	1.4217	1.0637	4.6619
17500	17452	295.07	1.4217	1.0806	4.6619
17600	17551	295.07	1.4217	1.0976	4.6619
17700	17651	295.07	1.4217	1.1150	4.6619
17800	17750	295.07	1.4217	1.1326	4.6619
17900	17850	295.07	1.4217	1.1505	4.6619
18000	17949	295.07	1.4217 - 5	1.1687 - 4	4.6619 - 6
18100	18049	295.07	1.4217	1.1872	4.6619
18200	18148	295.07	1.4217	1.2059	4.6619
18300	18247	295.07	1.4217	1.2250	4.6619
18400	18347	295.07	1.4217	1.2443	4.6619
18500	18446	295.07	1.4217	1.2640	4.6619
18600	18546	295.07	1.4217	1.2840	4.6619
18700	18645	295.07	1.4217	1.3043	4.6619
18800	18745	295.07	1.4217	1.3249	4.6619
18900	18844	295.07	1.4217	1.3458	4.6619

ALTITUDE		SOUND SPEED	COEF. OF VISCOSITY	KIN. VISCOSITY	THERMAL CONDUCT.
Z, m	H, m'	$C_s, m \text{ sec}^{-1}$	$\mu, \text{kg m}^{-1} \text{ sec}^{-1}$	$\eta, \text{m}^2 \text{ sec}^{-1}$	$k, \text{kcal m}^{-1} \text{ sec}^{-1} (^\circ\text{K})^{-1}$
19000	18943	295.07	1.4217 - 5	1.3671 - 4	4.6619 - 6
19100	19043	295.07	1.4217	1.3887	4.6619
19200	19142	295.07	1.4217	1.4106	4.6619
19300	19242	295.07	1.4217	1.4329	4.6619
19400	19341	295.07	1.4217	1.4555	4.6619
19500	19440	295.07	1.4217	1.4785	4.6619
19600	19540	295.07	1.4217	1.5019	4.6619
19700	19639	295.07	1.4217	1.5256	4.6619
19800	19739	295.07	1.4217	1.5497	4.6619
19900	19838	295.07	1.4217	1.5742	4.6619
20000	19937	295.07	1.4217 - 5	1.5990 - 4	4.6619 - 6
20200	20136	295.07	1.4217	1.6499	4.6619
20400	20335	295.07	1.4217	1.7024	4.6619
20600	20533	295.07	1.4217	1.7566	4.6619
20800	20732	295.07	1.4217	1.8125	4.6619
21000	20931	295.07	1.4217	1.8702	4.6619
21200	21130	295.07	1.4217	1.9298	4.6619
21400	21328	295.07	1.4217	1.9912	4.6619
21600	21527	295.07	1.4217	2.0545	4.6619
21800	21725	295.07	1.4217	2.1199	4.6619
22000	21924	295.07	1.4217 - 5	2.1874 - 4	4.6619 - 6
22200	22123	295.07	1.4217	2.2569	4.6619
22400	22321	295.07	1.4217	2.3287	4.6619
22600	22520	295.07	1.4217	2.4028	4.6619
22800	22719	295.07	1.4217	2.4793	4.6619
23000	22917	295.07	1.4217	2.5581	4.6619
23200	23116	295.07	1.4217	2.6395	4.6619
23400	23314	295.07	1.4217	2.7234	4.6619
23600	23513	295.07	1.4217	2.8100	4.6619
23800	23711	295.07	1.4217	2.8994	4.6619
24000	23910	295.07	1.4217 - 5	2.9916 - 4	4.6619 - 6
24200	24108	295.07	1.4217	3.0867	4.6619
24400	24307	295.07	1.4217	3.1848	4.6619
24600	24505	295.07	1.4217	3.2861	4.6619
24800	24704	295.07	1.4217	3.3905	4.6619
25000	24902	295.07	1.4217	3.4983	4.6619
25200	25100	295.27	1.4233	3.6187	4.6680
25400	25299	295.68	1.4266	3.7522	4.6800
25600	25497	296.08	1.4299	3.8903	4.6919
25800	25696	296.49	1.4331	4.0330	4.7039
26000	25894	296.89	1.4364 - 5	4.1805 - 4	4.7158 - 6
26200	26092	297.29	1.4396	4.3330	4.7278
26400	26291	297.69	1.4429	4.4906	4.7397
26600	26489	298.10	1.4461	4.6535	4.7517
26800	26687	298.50	1.4494	4.8218	4.7636
27000	26886	298.90	1.4526	4.9956	4.7755
27200	27084	299.30	1.4558	5.1753	4.7874
27400	27282	299.70	1.4590	5.3609	4.7993
27600	27481	300.09	1.4623	5.5526	4.8112
27800	27679	300.49	1.4655	5.7506	4.8231
28000	27877	300.89	1.4687 - 5	5.9550 - 4	4.8350 - 6
28200	28075	301.29	1.4719	6.1662	4.8469
28400	28274	301.68	1.4751	6.3842	4.8587
28600	28472	302.08	1.4783	6.6093	4.8706
28800	28670	302.47	1.4815	6.8417	4.8824
29000	28868	302.87	1.4847	7.0817	4.8943
29200	29066	303.26	1.4879	7.3293	4.9061
29400	29265	303.66	1.4911	7.5849	4.9179
29600	29463	304.05	1.4943	7.8487	4.9298
29800	29661	304.44	1.4975	8.1209	4.9416

ALTITUDE	SOUND SPEED	COEF. OF VISCOSITY	KIN. VISCOSITY	THERMAL CONDUCT.	
Z, m	H, m'	C _s , m sec ⁻¹	μ, kg m ⁻¹ sec ⁻¹	η, m ² sec ⁻¹	k, kcal m ⁻¹ sec ⁻¹ (°K) ⁻¹
30000	29659	304.83	1.5006 - 5	8.4018 - 4	4.9534 - 6
30200	30057	305.23	1.5038	8.6916	4.9652
30400	30255	305.62	1.5070	8.9907	4.9770
30600	30453	306.01	1.5102	9.2991	4.9888
30800	30651	306.40	1.5133	9.6173	5.0005
31000	30850	306.79	1.5165	9.9455	5.0123
31200	31048	307.18	1.5196	1.0284 - 3	5.0241
31400	31246	307.56	1.5228	1.0633	5.0358
31600	31444	307.95	1.5259	1.0993	5.0476
31800	31642	308.34	1.5291	1.1364	5.0593
32000	31840	308.73	1.5322 - 5	1.1747 - 3	5.0711 - 6
32200	32038	309.11	1.5353	1.2141	5.0828
32400	32236	309.50	1.5385	1.2548	5.0945
32600	32434	309.88	1.5416	1.2967	5.1062
32800	32632	310.27	1.5447	1.3399	5.1179
33000	32830	310.65	1.5479	1.3844	5.1296
33200	33028	311.04	1.5510	1.4303	5.1413
33400	33225	311.42	1.5541	1.4776	5.1530
33600	33423	311.80	1.5572	1.5263	5.1647
33800	33621	312.18	1.5603	1.5765	5.1763
34000	33819	312.57	1.5634 - 5	1.6282 - 3	5.1880 - 6
34200	34017	312.95	1.5665	1.6815	5.1996
34400	34215	313.33	1.5696	1.7363	5.2113
34600	34413	313.71	1.5727	1.7929	5.2229
34800	34611	314.09	1.5758	1.8511	5.2345
35000	34808	314.47	1.5789	1.9110	5.2462
35200	35006	314.85	1.5819	1.9727	5.2578
35400	35204	315.23	1.5850	2.0363	5.2694
35600	35402	315.60	1.5881	2.1017	5.2810
35800	35600	315.98	1.5912	2.1691	5.2926
36000	35797	316.36	1.5942 - 5	2.2384 - 3	5.3042 - 6
36200	35995	316.74	1.5973	2.3098	5.3157
36400	36193	317.11	1.6004	2.3833	5.3273
36600	36390	317.49	1.6034	2.4589	5.3389
36800	36588	317.86	1.6065	2.5368	5.3504
37000	36786	318.24	1.6095	2.6168	5.3620
37200	36984	318.61	1.6126	2.6993	5.3735
37400	37181	318.98	1.6156	2.7841	5.3851
37600	37379	319.36	1.6186	2.8713	5.3966
37800	37577	319.73	1.6217	2.9611	5.4081
38000	37774	320.10	1.6247 - 5	3.0534 - 3	5.4196 - 6
38200	37972	320.48	1.6277	3.1484	5.4311
38400	38169	320.85	1.6308	3.2461	5.4426
38600	38367	321.22	1.6338	3.3466	5.4541
38800	38565	321.59	1.6368	3.4499	5.4656
39000	38762	321.96	1.6398	3.5562	5.4771
39200	38960	322.33	1.6428	3.6655	5.4885
39400	39157	322.70	1.6458	3.7778	5.5000
39600	39355	323.07	1.6488	3.8934	5.5114
39800	39552	323.43	1.6518	4.0121	5.5229
40000	39750	323.80	1.6548 - 5	4.1342 - 3	5.5343 - 6
40200	39947	324.17	1.6578	4.2598	5.5457
40400	40145	324.54	1.6608	4.3888	5.5572
40600	40342	324.90	1.6638	4.5214	5.5686
40800	40540	325.27	1.6668	4.6577	5.5800
41000	40737	325.64	1.6698	4.7977	5.5914
41200	40935	326.00	1.6728	4.9417	5.6028
41400	41132	326.37	1.6757	5.0896	5.6142
41600	41330	326.73	1.6787	5.2415	5.6256
41800	41527	327.09	1.6817	5.3977	5.6369

ALTITUDE		SOUND SPEED	COEF. OF VISCOSITY	KIN. VISCOSITY	THERMAL CONDUCT.
Z, m	H, m'	$C_s, m \text{ sec}^{-1}$	$\mu, \text{kg m}^{-1} \text{ sec}^{-1}$	$\eta, \text{m}^2 \text{ sec}^{-1}$	$k, \text{kg cal m}^{-1} \text{ sec}^{-1} (^\circ \text{K})^{-1}$
42000	41724	327.46	1.6846 - 5	5.5581 - 3	5.6483 - 6
42200	41922	327.82	1.6876	5.7229	5.6597
42400	42119	328.18	1.6906	5.8921	5.6710
42600	42316	328.55	1.6935	6.0660	5.6823
42800	42514	328.91	1.6965	6.2446	5.6937
43000	42711	329.27	1.6994	6.4280	5.7050
43200	42908	329.63	1.7024	6.6164	5.7163
43400	43106	329.99	1.7053	6.8098	5.7276
43600	43303	330.35	1.7082	7.0084	5.7389
43800	43500	330.71	1.7112	7.2124	5.7502
44000	43698	331.07	1.7141 - 5	7.4218 - 3	5.7615 - 6
44200	43895	331.43	1.7170	7.6368	5.7728
44400	44092	331.79	1.7200	7.8573	5.7841
44600	44289	332.15	1.7229	8.0841	5.7954
44800	44486	332.50	1.7258	8.3167	5.8066
45000	44684	332.86	1.7287	8.5554	5.8179
45200	44881	333.22	1.7316	8.8004	5.8291
45400	45078	333.57	1.7346	9.0519	5.8404
45600	45275	333.93	1.7375	9.3099	5.8516
45800	45472	334.29	1.7404	9.5747	5.8628
46000	45670	334.64	1.7433 - 5	9.8465 - 3	5.8741 - 6
46200	45867	335.00	1.7462	1.0125 - 2	5.8853
46400	46064	335.35	1.7491	1.0411	5.8965
46600	46261	335.70	1.7519	1.0705	5.9077
46800	46458	336.06	1.7548	1.1006	5.9189
47000	46655	336.41	1.7577	1.1315	5.9300
47200	46852	336.76	1.7606	1.1632	5.9412
47400	47049	337.05	1.7628	1.1946	5.9496
47600	47246	337.05	1.7628	1.2234	5.9496
47800	47443	337.05	1.7628	1.2528	5.9496
48000	47640	337.05	1.7628 - 5	1.2830 - 2	5.9496 - 6
48200	47837	337.05	1.7628	1.3139	5.9496
48400	48034	337.05	1.7628	1.3456	5.9496
48600	48231	337.05	1.7628	1.3780	5.9496
48800	48428	337.05	1.7628	1.4112	5.9496
49000	48625	337.05	1.7628	1.4452	5.9496
49200	48822	337.05	1.7628	1.4800	5.9496
49400	49019	337.05	1.7628	1.5157	5.9496
49600	49216	337.05	1.7628	1.5522	5.9496
49800	49413	337.05	1.7628	1.5896	5.9496
50000	49610	337.05	1.7628 - 5	1.6279 - 2	5.9496 - 6
50500	50102	337.05	1.7628	1.7877	5.9496
51000	50594	337.05	1.7628	1.8535	5.9496
51500	51086	337.05	1.7628	1.9459	5.9496
52000	51578	337.05	1.7628	2.0551	5.9496
52500	52070	337.05	1.7628	2.1916	5.9496
53000	52562	337.05	1.7628	2.3558	5.9496
53500	53053	336.89	1.7616	2.4645	5.9451
54000	53545	335.96	1.7508	2.5798	5.9052
54500	54037	334.24	1.7400	2.7013	5.8613
55000	54528	332.90	1.7291 - 5	2.8296 - 2	5.8193 - 6
55500	55020	331.57	1.7182	2.9650	5.7772
56000	55511	330.22	1.7072	3.1079	5.7350
56500	56002	328.88	1.6962	3.2590	5.6927
57000	56493	327.52	1.6852	3.4187	5.6505
57500	56985	326.16	1.6741	3.5875	5.6079
58000	57476	324.80	1.6630	3.7661	5.5654
58500	57967	323.43	1.6518	3.9552	5.5228
59000	58457	322.06	1.6406	4.1554	5.4801
59500	58948	320.67	1.6294	4.3674	5.4373

ALTITUDE		SOUND SPEED	COEF. OF VISCOSITY	KIN. VISCOSITY	THERMAL CONDUCT.
Z, m	H, m'	$C_s, m \text{ sec}^{-1}$	$\mu, \text{kg m}^{-1} \text{ sec}^{-1}$	$\eta, \text{m}^2 \text{ sec}^{-1}$	$k, \text{kg cal m}^{-1} \text{ sec}^{-1} (^\circ\text{K})^{-1}$
60000	59439	319.29	1.6181 - 5	4.5922 - 2	5.3944 - 6
60500	59930	317.90	1.6067	4.8305	5.3514
61000	60420	316.50	1.5954	5.0834	5.3084
61500	60911	315.09	1.5839	5.3517	5.2653
62000	61401	313.68	1.5725	5.6367	5.2221
62500	61891	312.27	1.5610	5.9395	5.1788
63000	62382	310.84	1.5494	6.2615	5.1354
63500	62872	309.41	1.5378	6.6036	5.0919
64000	63362	307.98	1.5261	6.9682	5.0484
64500	63852	306.54	1.5144	7.3562	5.0047
65000	64342	305.09	1.5027 - 5	7.7696 - 2	4.9610 - 6
65500	64832	303.63	1.4909	8.2102	4.9172
66000	65322	302.17	1.4791	8.6802	4.8733
66500	65812	300.70	1.4672	9.1819	4.8293
67000	66301	299.22	1.4552	9.7175	4.7853
67500	66791	297.74	1.4432	1.0290 - 1	4.7411
68000	67280	296.25	1.4312	1.0902	4.6969
68500	67770	294.75	1.4191	1.1557	4.6526
69000	68259	293.25	1.4070	1.2258	4.6082
69500	68748	291.74	1.3948	1.3009	4.5637
70000	69238	290.22	1.3825 - 5	1.3815 - 1	4.5192 - 6
70500	69727	288.69	1.3702	1.4678	4.4745
71000	70216	287.15	1.3579	1.5605	4.4298
71500	70705	285.61	1.3455	1.6605	4.3850
72000	71194	284.06	1.3330	1.7674	4.3401
72500	71682	282.50	1.3205	1.8827	4.2951
73000	72171	280.93	1.3080	2.0068	4.2501
73500	72660	279.35	1.2953	2.1406	4.2050
74000	73148	277.76	1.2827	2.2849	4.1598
74500	73637	276.17	1.2699	2.4406	4.1145
75000	74125	274.57	1.2571 - 5	2.6089 - 1	4.0691 - 6
75500	74614	273.0	1.2444	2.791	4.024
76000	75102	271.3	1.231	2.988	3.978
76500	75590	269.7	1.218	3.201	3.933
77000	76078	268.1	1.205	3.432	3.887
77500	76566	266.4	1.192	3.683	3.841
78000	77054	264.7	1.179	3.956	3.795
78500	77542	263.1	1.166	4.252	3.750
79000	78030	261.4	1.153	4.573	3.704
79500	78518	259.7	1.139	4.926	3.658
80000	79006	258.0	1.126 - 5	5.311 - 1	3.612 - 6
80500	79493	258.0	1.126	5.873	3.612
81000	79981	258.0	1.126	6.494	3.612
81500	80468	258.0	1.126	7.181	3.612
82000	80956	258.0	1.126	7.940	3.612
82500	81443	258.0	1.126	8.779	3.612
83000	81930	258.0	1.126	9.708	3.612
83500	82417	258.0	1.126	1.073 + 0	3.612
84000	82904	258.0	1.126	1.187	3.612
84500	83391	258.0	1.126	1.312	3.612
85000	83878	258.0	1.126 - 5	1.451 + 0	3.612 - 6
85500	84365	258.0	1.126	1.604	3.612
86000	84852	258.0	1.126	1.773	3.612
86500	85339	258.0	1.126	1.961	3.612
87000	85825	258.0	1.126	2.168	3.612
87500	86312	258.0	1.126	2.396	3.612
88000	86798	258.0	1.126	2.649	3.612
88500	87285	258.0	1.126	2.929	3.612
89000	87771	258.0	1.126	3.238	3.612
89500	88257	258.0	1.126	3.579	3.612
90000	88743	258.0	1.126	3.957	3.612

TABLE IIA
ATMOSPHERIC PROPERTIES AS A FUNCTION OF ALTITUDE,
ENGLISH UNITS:

Temperature, Pressure, Density, and Molecular Weight

NOTE: A one- or two-digit number (preceded by a plus or minus sign) following the initial entry of each block indicates the power of 10 by which that entry and each succeeding entry of that block should be multiplied. A change of power occurring within a block is indicated by a similar notation.

ALTITUDE		TEMP.	P, mb	PRESSURE	P, in. Hg	DENSITY		MOL. WEIGHT
Z, ft	H, ft'	T, °R		P, lb/ft ²		ρ , lb/ft ³	ρ , lb/ft ⁻³	M
-16500	-16513	577.58	1.7518 + 3	3.6588 + 3	5.1732 + 1	3.6905 - 3	1.1874 - 1	28.966
-16000	-16042	575.79	1.7544	3.6641	5.1807	3.7074	1.1908	28.966
-15500	-15512	574.00	1.7260	3.6048	5.0968	3.6587	1.1771	28.966
-15000	-15011	572.22	1.6979	3.5462	5.0140	3.6105	1.1616	28.966
-14500	-14510	570.43	1.6703	3.4884	4.9323	3.5628	1.1463	28.966
-14000	-14009	568.65	1.6430	3.4314	4.8517	3.5155	1.1311	28.966
-13500	-13509	566.86	1.6160	3.3752	4.7722	3.4688	1.1161	28.966
-13000	-13008	565.08	1.5895	3.3197	4.6937	3.4225	1.1012	28.966
-12500	-12507	563.29	1.5633	3.2649	4.6163	3.3768	1.0864	28.966
-12000	-12007	561.51	1.5374	3.2109	4.5399	3.3314	1.0719	28.966
-11500	-11506	559.72	1.5119 + 3	3.1576 + 3	4.4646 + 1	3.2866 - 3	1.0574 - 1	28.966
-11000	-11005	557.94	1.4867	3.1050	4.3902	3.2422	1.0432	28.966
-10500	-10505	556.15	1.4619	3.0532	4.3169	3.1983	1.0290	28.966
-10000	-10005	554.37	1.4374	3.0020	4.2446	3.1548	1.0150	28.966
-9500	-9504	552.58	1.4132	2.9516	4.1732	3.1118	1.0012	28.966
-9000	-9004	550.80	1.3894	2.9018	4.1029	3.0693	9.8752 - 2	28.966
-8500	-8503	549.01	1.3659	2.8527	4.0335	3.0272	9.7397	28.966
-8000	-8003	547.23	1.3427	2.8043	3.9651	2.9855	9.6057	28.966
-7500	-7503	545.44	1.3199	2.7566	3.8976	2.9443	9.4731	28.966
-7000	-7002	543.66	1.2973	2.7095	3.8310	2.9035	9.3419	28.966
-6500	-6502	541.88	1.2751 + 3	2.6631 + 3	3.7654 + 1	2.8632 - 3	9.2121 - 2	28.966
-6000	-6002	540.09	1.2532	2.6174	3.7007	2.8233	9.0837	28.966
-5500	-5501	538.31	1.2316	2.5722	3.6369	2.7838	8.9567	28.966
-5000	-5001	536.52	1.2103	2.5277	3.5740	2.7448	8.8310	28.966
-4500	-4501	534.74	1.1893	2.4839	3.5120	2.7061	8.7067	28.966
-4000	-4001	532.96	1.1686	2.4406	3.4508	2.6679	8.5838	28.966
-3500	-3501	531.17	1.1482	2.3980	3.3905	2.6301	8.4622	28.966
-3000	-3000	529.39	1.1280	2.3560	3.3311	2.5927	8.3419	28.966
-2500	-2500	527.60	1.1082	2.3146	3.2726	2.5558	8.2229	28.966
-2000	-2000	525.82	1.0887	2.2737	3.2148	2.5192	8.1053	28.966
-1500	-1500	524.04	1.0694 + 3	2.2335 + 3	3.1579 + 1	2.4830 - 3	7.9889 - 2	28.966
-1000	-1000	522.25	1.0504	2.1938	3.1019	2.4473	7.8738	28.966
-500	-500	520.47	1.0317	2.1547	3.0466	2.4119	7.7601	28.966
0	0	518.69	1.01325	2.1162	2.9921	2.3769	7.6475	28.966
500	500	516.90	9.9508 + 2	2.0783	2.9385	2.3423	7.5362	28.966
1000	1000	515.12	9.7717	2.0409	2.8856	2.3081	7.4262	28.966
1500	1500	513.34	9.5932	2.0040	2.8335	2.2743	7.3175	28.966
2000	2000	511.56	9.4213	1.9677	2.7821	2.2409	7.2099	28.966
2500	2500	509.77	9.2501	1.9319	2.7315	2.2079	7.1036	28.966
3000	3000	507.99	9.0813	1.8967	2.6817	2.1752	6.9984	28.966
3500	3499	506.21	8.9151 + 2	1.8619 + 3	2.6326 + 1	2.1429 - 3	6.8945 - 2	28.966
4000	3999	504.43	8.7513	1.8277	2.5843	2.1110	6.7918	28.966
4500	4499	502.64	8.5900	1.7941	2.5366	2.0794	6.6902	28.966
5000	4999	500.86	8.4311	1.7609	2.4897	2.0482	6.5899	28.966
5500	5499	499.08	8.2746	1.7282	2.4435	2.0174	6.4906	28.966
6000	5998	497.30	8.1205	1.6960	2.3980	1.9869	6.3926	28.966
6500	6498	495.52	7.9687	1.6643	2.3532	1.9567	6.2956	28.966
7000	6998	493.73	7.8192	1.6331	2.3090	1.9270	6.1998	28.966
7500	7497	491.95	7.6720	1.6023	2.2655	1.8975	6.1052	28.966
8000	7997	490.17	7.5271	1.5721	2.2228	1.8685	6.0116	28.966
8500	8497	488.39	7.3844 + 2	1.5423 + 3	2.1806 + 1	1.8397 - 3	5.9192 - 2	28.966
9000	8996	486.61	7.2439	1.5129	2.1391	1.8113	5.8278	28.966
9500	9496	484.82	7.1056	1.4840	2.0983	1.7833	5.7375	28.966
10000	9995	483.04	6.9694	1.4556	2.0581	1.7556	5.6483	28.966
10500	10495	481.26	6.8354	1.4276	2.0185	1.7282	5.5602	28.966
11000	10994	479.48	6.7035	1.4000	1.9795	1.7011	5.4732	28.966
11500	11494	477.70	6.5736	1.3729	1.9412	1.6744	5.3871	28.966
12000	11993	475.92	6.4458	1.3462	1.9034	1.6480	5.3022	28.966
12500	12493	474.14	6.3200	1.3200	1.8663	1.6219	5.2182	28.966
13000	12992	472.36	6.1962	1.2941	1.8298	1.5961	5.1353	28.966

ALTITUDE		TEMP.	PRESSURE		DENSITY		MOL. WEIGHT
Z, ft	H, ft	T, °R	P, mb	P, lb/ft ²	P, in. Hg	ρ , lb/ft ³	M
13500	13491	470.58	6.0744 + 2	1.2687 + 3	1.7938 + 1	1.5707 - 3	28.966
14000	13991	468.80	5.9546	1.2436	1.7584	1.5455	28.966
14500	14490	467.01	5.8367	1.2190	1.7236	1.5207	28.966
15000	14989	465.23	5.7206	1.1948	1.6893	1.4962	28.966
15500	15488	463.45	5.6065	1.1709	1.6556	1.4719	28.966
16000	15988	461.67	5.4942	1.1475	1.6224	1.4480	28.966
16500	16487	459.89	5.3838	1.1244	1.5898	1.4244	28.966
17000	16986	458.11	5.2751	1.1017	1.5577	1.4011	28.966
17500	17485	456.33	5.1683	1.0794	1.5262	1.3781	28.966
18000	17984	454.55	5.0632	1.0575	1.4952	1.3553	28.966
18500	18484	452.77	4.9598 + 2	1.0359 + 3	1.4646 + 1	1.3329 - 3	28.966
19000	18983	450.99	4.8582	1.0147	1.4346	1.3107	28.966
19500	19482	449.21	4.7583	9.9379 + 2	1.4051	1.2889	28.966
20000	19981	447.43	4.6600	9.7327	1.3761	1.2673	28.966
20500	20480	445.65	4.5634	9.5309	1.3476	1.2459	28.966
21000	20979	443.87	4.4685	9.3326	1.3195	1.2249	28.966
21500	21478	442.09	4.3751	9.1376	1.2920	1.2041	28.966
22000	21977	440.32	4.2833	8.9459	1.2649	1.1836	28.966
22500	22476	438.54	4.1931	8.7576	1.2382	1.1634	28.966
23000	22975	436.76	4.1045	8.5724	1.2121	1.1435	28.966
23500	23474	434.98	4.0174 + 2	8.3905 + 2	1.1863 + 1	1.1238 - 3	28.966
24000	23972	433.20	3.9318	8.2116	1.1610	1.1043	28.966
24500	24471	431.42	3.8476	8.0359	1.1362	1.0852	28.966
25000	24970	429.64	3.7650	7.8633	1.1118	1.0663	28.966
25500	25469	427.86	3.6838	7.6937	1.0878	1.0476	28.966
26000	25968	426.08	3.6040	7.5271	1.0643	1.0292	28.966
26500	26466	424.30	3.5256	7.3634	1.0411	1.0110	28.966
27000	26965	422.53	3.4486	7.2026	1.0184	9.9311 - 4	28.966
27500	27464	420.75	3.3730	7.0447	9.9605 + 0	9.7544	28.966
28000	27962	418.97	3.2987	6.8896	9.7412	9.5801	28.966
28500	28461	417.19	3.2258 + 2	6.7373 + 2	9.5258 + 0	9.4082 - 4	28.966
29000	28960	415.41	3.1542	6.5877	9.3143	9.2387	28.966
29500	29458	413.63	3.0839	6.4408	9.1067	9.0716	28.966
30000	29957	411.86	3.0148	6.2966	8.9028	8.9068	28.966
30500	30455	410.08	2.9471	6.1551	8.7027	8.7443	28.966
31000	30954	408.30	2.8805	6.0161	8.5062	8.5841	28.966
31500	31452	406.52	2.8152	5.8797	8.3133	8.4261	28.966
32000	31951	404.75	2.7511	5.7458	8.1240	8.2704	28.966
32500	32449	402.97	2.6882	5.6144	7.9382	8.1169	28.966
33000	32948	401.19	2.6264	5.4854	7.7559	7.9655	28.966
33500	33446	399.41	2.5659 + 2	5.3589 + 2	7.5770 + 0	7.8165 - 4	28.966
34000	33945	397.64	2.5064	5.2347	7.4014	7.6696	28.966
34500	34443	395.86	2.4481	5.1129	7.2292	7.5247	28.966
35000	34941	394.08	2.3909	4.9934	7.0602	7.3820	28.966
35500	35440	392.30	2.3347	4.8762	6.8945	7.2413	28.966
36000	35938	390.53	2.2797	4.7612	6.7319	7.1028	28.966
36500	36436	388.99	2.2258	4.6486	6.5726	6.9643	28.966
37000	36934	389.99	2.1731	4.5386	6.4171	6.7800	28.966
37500	37433	389.99	2.1217	4.4312	6.2653	6.6196	28.966
38000	37931	389.99	2.0715	4.3263	6.1170	6.4629	28.966
38500	38429	389.99	2.0225 + 2	4.2240 + 2	5.9723 + 0	6.3100 - 4	28.966
39000	38927	389.99	1.9746	4.1241	5.8310	6.1608	28.966
39500	39425	389.99	1.9279	4.0265	5.6931	6.0150	28.966
40000	39923	389.99	1.8823	3.9312	5.5584	5.8727	28.966
40500	40422	389.99	1.8378	3.8382	5.4269	5.7338	28.966
41000	40920	389.99	1.7943	3.7475	5.2985	5.5982	28.966
41500	41418	389.99	1.7519	3.6588	5.1732	5.4658	28.966
42000	41916	389.99	1.7104	3.5723	5.0509	5.3365	28.966
42500	42414	389.99	1.6700	3.4878	4.9314	5.2103	28.966
43000	42912	389.99	1.6305	3.4053	4.8148	5.0871	28.966

ALTITUDE		TEMP.	F, bm	PRESSURE		DENSITY		MOL. WEIGHT
Z, ft	H, ft'	T, °R		P, lb/ft ²	P, in. Hg	ρ , lb/ft ³	ρ , lb/ft ³	M
43500	43409	389.99	1.5919 + 2	3.3248 + 2	4.7009 + 0	4.9668 - 4	1.5980 - 2	28.966
44000	43907	389.99	1.5543	3.2462	4.5898	4.8493	1.5602	28.966
44500	44405	389.99	1.5175	3.1694	4.4812	4.7346	1.5233	28.966
45000	44903	389.99	1.4816	3.0945	4.3753	4.6227	1.4873	28.966
45500	45401	389.99	1.4466	3.0215	4.2718	4.5134	1.4521	28.966
46000	45899	389.99	1.4124	2.9499	4.1708	4.4067	1.4178	28.966
46500	46397	389.99	1.3790	2.8801	4.0722	4.3025	1.3843	28.966
47000	46894	389.99	1.3464	2.8120	3.9760	4.2008	1.3516	28.966
47500	47392	389.99	1.3146	2.7456	3.8820	4.1015	1.3196	28.966
48000	47890	389.99	1.2835	2.6807	3.7902	4.0045	1.2884	28.966
48500	48387	389.99	1.2532 + 2	2.6173 + 2	3.7006 + 0	3.9099 - 4	1.2580 - 2	28.966
49000	48885	389.99	1.2236	2.5554	3.6131	3.8175	1.2282	28.966
49500	49383	389.99	1.1946	2.4950	3.5277	3.7272	1.1992	28.966
50000	49880	389.99	1.1664	2.4361	3.4444	3.6391	1.1709	28.966
50500	50378	389.99	1.1388	2.3785	3.3630	3.5531	1.1432	28.966
51000	50876	389.99	1.1119	2.3223	3.2835	3.4692	1.1162	28.966
51500	51373	389.99	1.0856	2.2674	3.2059	3.3872	1.0898	28.966
52000	51871	389.99	1.0600	2.2138	3.1302	3.3072	1.0640	28.966
52500	52368	389.99	1.0349	2.1615	3.0562	3.2290	1.0389	28.966
53000	52866	389.99	1.0105	2.1105	2.9840	3.1527	1.0144	28.966
53500	53363	389.99	9.8662 + 1	2.0606 + 2	2.9135 + 0	3.0782 - 4	9.9040 - 3	28.966
54000	53861	389.99	9.6331	2.0119	2.8447	3.0055	9.6700	28.966
54500	54358	389.99	9.4056	1.9644	2.7775	2.9345	9.4415	28.966
55000	54855	389.99	9.1834	1.9180	2.7118	2.8652	9.2185	28.966
55500	55353	389.99	8.9664	1.8727	2.6478	2.7975	9.0008	28.966
56000	55850	389.99	8.7547	1.8284	2.5852	2.7314	8.7882	28.966
56500	56347	389.99	8.5479	1.7853	2.5242	2.6669	8.5806	28.966
57000	56845	389.99	8.3460	1.7431	2.4646	2.6059	8.3779	28.966
57500	57342	389.99	8.1489	1.7019	2.4064	2.5424	8.1801	28.966
58000	57839	389.99	7.9564	1.6617	2.3495	2.4824	7.9869	28.966
58500	58336	389.99	7.7686 + 1	1.6225 + 2	2.2941 + 0	2.4238 - 4	7.7983 - 3	28.966
59000	58834	389.99	7.5851	1.5842	2.2399	2.3665	7.6141	28.966
59500	59331	389.99	7.4060	1.5468	2.1870	2.3107	7.4343	28.966
60000	59828	389.99	7.2311	1.5103	2.1354	2.2561	7.2588	28.966
60500	60325	389.99	7.0604	1.4746	2.0849	2.2028	7.0874	28.966
61000	60822	389.99	6.8937	1.4398	2.0357	2.1508	6.9201	28.966
61500	61319	389.99	6.7310	1.4058	1.9877	2.1001	6.7567	28.966
62000	61816	389.99	6.5721	1.3726	1.9407	2.0505	6.5972	28.966
62500	62313	389.99	6.4169	1.3402	1.8949	2.0021	6.4415	28.966
63000	62810	389.99	6.2655	1.3086	1.8502	1.9548	6.2894	28.966
63500	63307	389.99	6.1176 + 1	1.2777 + 2	1.8065 + 0	1.9087 - 4	6.1410 - 3	28.966
64000	63804	389.99	5.9732	1.2475	1.7639	1.8636	5.9960	28.966
64500	64301	389.99	5.8322	1.2181	1.7223	1.8196	5.8545	28.966
65000	64798	389.99	5.6946	1.1893	1.6816	1.7767	5.7164	28.966
65500	65295	389.99	5.5602	1.1613	1.6419	1.7348	5.5815	28.966
66000	65792	389.99	5.4290	1.1339	1.6032	1.6938	5.4497	28.966
66500	66289	389.99	5.3009	1.1071	1.5653	1.6539	5.3212	28.966
67000	66786	389.99	5.1758	1.0810	1.5284	1.6148	5.1956	28.966
67500	67282	389.99	5.0537	1.0555	1.4923	1.5767	5.0730	28.966
68000	67779	389.99	4.9344	1.0306	1.4571	1.5395	4.9533	28.966
68500	68276	389.99	4.8180 + 1	1.0063 + 2	1.4228 + 0	1.5032 - 4	4.8365 - 3	28.966
69000	68772	389.99	4.7044	9.0253 + 1	1.3892	1.4678	4.7224	28.966
69500	69269	389.99	4.5934	9.5935	1.3564	1.4331	4.6110	28.966
70000	69766	389.99	4.4850	9.3672	1.3244	1.3993	4.5022	28.966
70500	70262	389.99	4.3792	9.1462	1.2932	1.3663	4.3960	28.966
71000	70759	389.99	4.2759	8.9305	1.2627	1.3341	4.2923	28.966
71500	71256	389.99	4.1751	8.7199	1.2329	1.3026	4.1911	28.966
72000	71752	389.99	4.0766	8.5142	1.2038	1.2719	4.0922	28.966
72500	72249	389.99	3.9805	8.3134	1.1754	1.2419	3.9957	28.966
73000	72745	389.99	3.8866	8.1174	1.1477	1.2126	3.9015	28.966

ALTITUDE		TEMP.	P, mb	PRESSURE		DENSITY		MOL. WEIGHT
Z, ft	H, ft	T, °R		P, lb/ft ²	P, in. Hg	ρ , lb/ft ³	ρ , lb/ft ³	M
73500	73242	389.99	3.7950 + 1	7.9259 + 1	1.1207 + 0	1.1840 - 4	3.8095 - 3	28.966
74000	73738	389.99	3.7055	7.7390	1.0942	1.1561	3.7197	28.966
74500	74235	389.99	3.6181	7.5566	1.0684	1.1288	3.6319	28.966
75000	74731	389.99	3.5328	7.3784	1.0432	1.1022	3.5463	28.966
75500	75228	389.99	3.4495	7.2014	1.0186	1.0762	3.4627	28.966
76000	75724	389.99	3.3682	7.0346	9.9462 - 1	1.0509	3.3811	28.966
76500	76220	389.99	3.2888	6.8687	9.7117	1.0261	3.3014	28.966
77000	76717	389.99	3.2112	6.7068	9.4828	1.0019	3.2235	28.966
77500	77213	389.99	3.1355	6.5487	9.2593	9.7829 - 1	3.1475	28.966
78000	77709	389.99	3.0616	6.3944	9.0410	9.5523	3.0734	28.966
78500	78206	389.99	2.9895 + 1	6.2437 + 1	8.8279 - 1	9.3271 - 5	3.0009 - 3	28.966
79000	78702	389.99	2.9190	6.0965	8.6199	9.1073	2.9302	28.966
79500	79198	389.99	2.8502	5.9528	8.4167	8.8927	2.8611	28.966
80000	79694	389.99	2.7831	5.8125	8.2183	8.6831	2.7937	28.966
80500	80190	389.99	2.7175	5.6755	8.0247	8.4785	2.7279	28.966
81000	80687	389.99	2.6534	5.5418	7.8356	8.2787	2.6636	28.966
81500	81183	389.99	2.5909	5.4112	7.6509	8.0836	2.6008	28.966
82000	81679	389.99	2.5299	5.2857	7.4707	7.8931	2.5395	28.966
82500	82175	390.24	2.4703	5.1592	7.2947	7.7022	2.4781	28.966
83000	82671	391.06	2.4122	5.0379	7.1231	7.5053	2.4148	28.966
83500	83167	391.87	2.3555 + 1	4.9196 + 1	6.9559 - 1	7.3139 - 5	2.3532 - 3	28.966
84000	83663	392.69	2.3004	4.8044	6.7930	7.1277	2.2933	28.966
84500	84159	393.51	2.2466	4.6921	6.6342	6.9467	2.2350	28.966
85000	84655	394.32	2.1942	4.5827	6.4795	6.7706	2.1784	28.966
85500	85151	395.14	2.1431	4.4760	6.3287	6.5994	2.1233	28.966
86000	85647	395.96	2.0934	4.3721	6.1817	6.4328	2.0697	28.966
86500	86143	396.77	2.0448	4.2707	6.0384	6.2708	2.0176	28.966
87000	86639	397.59	1.9975	4.1719	5.8987	6.1132	1.9669	28.966
87500	87134	398.40	1.9514	4.0757	5.7626	5.9598	1.9175	28.966
88000	87630	399.22	1.9065	3.9818	5.6298	5.8106	1.8695	28.966
88500	88126	400.04	1.8627 + 1	3.8902 + 1	5.5004 - 1	5.6655 - 5	1.8228 - 3	28.966
89000	88622	400.85	1.8199	3.8010	5.3743	5.5243	1.7774	28.966
89500	89118	401.67	1.7783	3.7140	5.2512	5.3868	1.7332	28.966
90000	89613	402.48	1.7376	3.6292	5.1313	5.2531	1.6901	28.966
90500	90109	403.30	1.6980	3.5464	5.0143	5.1230	1.6483	28.966
91000	90605	404.12	1.6594	3.4657	4.9002	4.9963	1.6075	28.966
91500	91100	404.93	1.6217	3.3870	4.7889	4.8730	1.5678	28.966
92000	91596	405.75	1.5850	3.3103	4.6804	4.7530	1.5292	28.966
92500	92092	406.56	1.5491	3.2354	4.5746	4.6362	1.4917	28.966
93000	92587	407.38	1.5142	3.1624	4.4714	4.5225	1.4551	28.966
93500	93083	408.19	1.4801 + 1	3.0912 + 1	4.3707 - 1	4.4118 - 5	1.4195 - 3	28.966
94000	93578	409.01	1.4468	3.0217	4.2724	4.3041	1.3848	28.966
94500	94074	409.83	1.4144	2.9539	4.1766	4.1992	1.3510	28.966
95000	94569	410.64	1.3827	2.8878	4.0831	4.0970	1.3182	28.966
95500	95065	411.46	1.3518	2.8233	3.9919	3.9976	1.2862	28.966
96000	95560	412.27	1.3217	2.7604	3.9029	3.9007	1.2550	28.966
96500	96056	413.09	1.2923	2.6989	3.8160	3.8064	1.2247	28.966
97000	96551	413.90	1.2636	2.6390	3.7313	3.7145	1.1951	28.966
97500	97046	414.72	1.2356	2.5805	3.6486	3.6251	1.1663	28.966
98000	97542	415.53	1.2082	2.5234	3.5679	3.5379	1.1383	28.966
98500	98037	416.35	1.1816 + 1	2.4677 + 1	3.4891 - 1	3.4530 - 5	1.1110 - 3	28.966
99000	98532	417.16	1.1555	2.4134	3.4123	3.3704	1.0844	28.966
99500	99028	417.98	1.1301	2.3603	3.3373	3.2898	1.0585	28.966
100000	99523	418.79	1.1053	2.3085	3.2640	3.2114	1.0332	28.966
100500	100018	419.61	1.0811	2.2580	3.1925	3.1350	1.0086	28.966
101000	100513	420.42	1.0575	2.2086	3.1228	3.0605	9.8468 - 4	28.966
101500	101008	421.24	1.0344	2.1604	3.0546	2.9879	9.6134	28.966
102000	101504	422.05	1.0119	2.1134	2.9881	2.9172	9.3859	28.966
102500	101999	422.87	9.8991 + 0	2.0675	2.9232	2.8484	9.1643	28.966
103000	102494	423.68	9.6844	2.0226	2.8598	2.7812	8.9483	28.966

ALTITUDE		TEMP.	PRESSURE		DENSITY		MOL. WEIGHT	
Z, ft	H, ft'	T, °R	P, mb	P, lb ^f ft ⁻²	P, in. Hg	$\rho, \text{lb}^f \text{sec}^2 \text{ft}^{-4}$	$\rho, \text{lb ft}^{-3}$	M
103500	102989	424.50	9.4748 + 0	1.9789 + 1	2.7979 - 1	2.7158 - 5	8.7378 - 4	28.966
104000	103484	425.31	9.2701	1.9361	2.7375	2.6520	8.5327	28.966
104500	103979	426.13	9.0705	1.8944	2.6785	2.5899	8.3328	28.966
105000	104474	426.94	8.8751	1.8536	2.6208	2.5293	8.1379	28.966
106000	105464	428.57	8.4985	1.7749	2.5096	2.4128	7.7628	28.966
107000	106454	430.20	8.1389	1.6999	2.4034	2.3020	7.4064	28.966
108000	107444	431.83	7.7960	1.6282	2.3022	2.1967	7.0576	28.966
109000	108433	433.46	7.4688	1.5599	2.2055	2.0966	6.7455	28.966
110000	109423	435.09	7.1565	1.4947	2.1133	2.0014	6.4392	28.966
111000	110412	436.72	6.8584	1.4324	2.0253	1.9109	6.1480	28.966
112000	111402	438.35	6.5738 + 0	1.3730 + 1	1.9412 - 1	1.8247 - 5	5.8710 - 4	28.966
113000	112391	439.97	6.3020	1.3162	1.8610	1.7428	5.6074	28.966
114000	113380	441.60	6.0424	1.2620	1.7843	1.6649	5.3566	28.966
115000	114369	443.23	5.7944	1.2102	1.7111	1.5907	5.1179	28.966
116000	115358	444.86	5.5575	1.1607	1.6411	1.5201	4.8906	28.966
117000	116347	446.49	5.3311	1.1134	1.5743	1.4528	4.6743	28.966
118000	117336	448.11	5.1147	1.0682	1.5104	1.3888	4.4683	28.966
119000	118325	449.74	4.9078	1.0250	1.4493	1.3278	4.2721	28.966
120000	119313	451.37	4.7101	9.8372 + 0	1.3909	1.2697	4.0851	28.966
121000	120302	453.00	4.5210	9.4422	1.3350	1.2143	3.9070	28.966
122000	121290	454.62	4.3401 + 0	9.0645 + 0	1.2816 - 1	1.1616 - 5	3.7373 - 4	28.966
123000	122279	456.25	4.1671	8.7032	1.2305	1.1113	3.5755	28.966
124000	123267	457.88	4.0016	8.3575	1.1817	1.0634	3.4213	28.966
125000	124255	459.50	3.8432	8.0267	1.1349	1.0177	3.2743	28.966
126000	125243	461.13	3.6917	7.7102	1.0901	9.7410 - 6	3.1341	28.966
127000	126231	462.75	3.5466	7.4072	1.0473	9.3253	3.0003	28.966
128000	127219	464.38	3.4077	7.1172	1.0063	8.9288	2.8728	28.966
129000	128207	466.01	3.2748	6.8395	9.6703 - 2	8.5505	2.7510	28.966
130000	129195	467.63	3.1474	6.5735	9.2943	8.1894	2.6349	28.966
131000	130182	469.26	3.0255	6.3188	8.9342	7.8449	2.5240	28.966
132000	131170	470.88	2.9086 + 0	6.0748 + 0	8.5892 - 2	7.5159 - 6	2.4182 - 4	28.966
133000	132157	472.51	2.7967	5.8411	8.2587	7.2019	2.3171	28.966
134000	133145	474.13	2.6895	5.6171	7.9421	6.9020	2.2206	28.966
135000	134132	475.76	2.5867	5.4025	7.6386	6.6156	2.1285	28.966
136000	135119	477.38	2.4882	5.1967	7.3477	6.3420	2.0405	28.966
137000	136106	479.01	2.3938	4.9995	7.0688	6.0806	1.9564	28.966
138000	137093	480.63	2.3032	4.8104	6.8015	5.8309	1.8760	28.966
139000	138080	482.26	2.2164	4.6291	6.5451	5.5922	1.7992	28.966
140000	139066	483.88	2.1332	4.4552	6.2993	5.3640	1.7258	28.966
141000	140053	485.50	2.0533	4.2884	6.0634	5.1460	1.6557	28.966
142000	141040	487.13	1.9767 + 0	4.1284 + 0	5.8372 - 2	4.9374 - 6	1.5886 - 4	28.966
143000	142026	488.75	1.9032	3.9749	5.6201	4.7380	1.5244	28.966
144000	143013	490.38	1.8327	3.8276	5.4118	4.5473	1.4631	28.966
145000	143999	492.00	1.7650	3.6862	5.2119	4.3649	1.4044	28.966
146000	144985	493.62	1.7000	3.5505	5.0201	4.1904	1.3480	28.966
147000	145971	495.24	1.6376	3.4202	4.8359	4.0234	1.2945	28.966
148000	146957	496.87	1.5777	3.2951	4.6590	3.8636	1.2431	28.966
149000	147943	498.49	1.5202	3.1750	4.4892	3.7106	1.1939	28.966
150000	148929	500.11	1.4650	3.0597	4.3261	3.5642	1.1468	28.966
151000	149915	501.74	1.4119	2.9489	4.1694	3.4241	1.1017	28.966
152000	150900	503.36	1.3610 + 0	2.8424 + 0	4.0189 - 2	3.2898 - 6	1.0585 - 4	28.966
153000	151886	504.98	1.3120	2.7402	3.8743	3.1613	1.0171	28.966
154000	152871	506.60	1.2649	2.6419	3.7354	3.0382	9.7750 - 5	28.966
155000	153856	508.22	1.2197	2.5473	3.6019	2.9202	9.3955	28.966
156000	154842	509.84	1.1762	2.4566	3.4734	2.8130	9.0305	28.966
157000	155827	511.46	1.1343	2.3691	3.3496	2.7127	8.7279	28.966
158000	156812	513.08	1.0939	2.2846	3.2303	2.6160	8.4168	28.966
159000	157797	514.70	1.0549	2.2032	3.1151	2.5228	8.1169	28.966
160000	158782	516.32	1.0173	2.1247	3.0041	2.4329	7.8276	28.966
161000	159767	517.94	9.8107 - 1	2.0490	2.8971	2.3462	7.5487	28.966

ALTITUDE		TEMP.	PRESSURE		DENSITY		MOL. WEIGHT	
Z, ft	H, ft'	T, °R	P, mb	P, lb/ft ²	P, in. Hg	ρ , lb sec ² /ft ⁴	ρ , lb ft ⁻³	M
162000	160751	508.79	9.4612 - 1	1.9760 + 0	2.7939 - 2	2.2626 - 6	7.2798 - 5	28.966
163000	161736	508.79	9.1242	1.9056	2.6944	2.1820	7.0205	28.966
164000	162720	508.79	8.7992	1.8377	2.5984	2.1043	6.7704	28.966
165000	163705	508.79	8.4858	1.7723	2.5058	2.0294	6.5293	28.966
166000	164689	508.79	8.1835	1.7092	2.4166	1.9571	6.2967	28.966
167000	165673	508.79	7.8921	1.6483	2.3305	1.8874	6.0725	28.966
168000	166657	508.79	7.6111	1.5896	2.2476	1.8202	5.8563	28.966
169000	167641	508.79	7.3401	1.5330	2.1675	1.7554	5.6478	28.966
170000	168625	508.79	7.0788	1.4784	2.0904	1.6929	5.4467	28.966
171000	169609	508.79	6.8268	1.4258	2.0160	1.6326	5.2528	28.966
172000	170593	508.79	6.5839 - 1	1.3751 + 0	1.9442 - 2	1.5745 - 6	5.0659 - 5	28.966
173000	171577	508.79	6.3495	1.3261	1.8750	1.5185	4.8856	28.966
174000	172560	508.79	6.1236	1.2789	1.8083	1.4644	4.7117	28.966
175000	173544	508.79	5.9057	1.2334	1.7439	1.4123	4.5440	28.966
176000	174527	507.20	5.6953	1.1895	1.6818	1.3663	4.3959	28.966
177000	175510	504.77	5.4916	1.1469	1.6217	1.3238	4.2531	28.966
178000	176494	502.35	5.2943	1.1057	1.5634	1.2824	4.1258	28.966
179000	177477	499.92	5.1031	1.0658	1.5070	1.2421	3.9962	28.966
180000	178460	497.49	4.9180	1.0272	1.4523	1.2028	3.8700	28.966
181000	179443	495.07	4.7388	9.8972 - 1	1.3994	1.1647	3.7473	28.966
182000	180425	492.64	4.5653 - 1	9.5348 - 1	1.3481 - 2	1.1276 - 6	3.6278 - 5	28.966
183000	181408	490.21	4.3973	9.1840	1.2985	1.0915	3.5117	28.966
184000	182391	487.79	4.2348	8.8445	1.2505	1.0563	3.3987	28.966
185000	183373	485.36	4.0775	8.5160	1.2041	1.0222	3.2888	28.966
186000	184356	482.94	3.9253	8.1982	1.1591	9.8898 - 7	3.1820	28.966
187000	185338	480.51	3.7781	7.8907	1.1157	9.5670	3.0781	28.966
188000	186320	478.09	3.6357	7.5934	1.0736	9.2531	2.9771	28.966
189000	187303	475.66	3.4980	7.3058	1.0330	8.9481	2.8790	28.966
190000	188285	473.24	3.3649	7.0278	9.9366 - 3	8.6517	2.7836	28.966
191000	189267	470.81	3.2362	6.7590	9.5566	8.3636	2.6909	28.966
192000	190248	468.39	3.1118 - 1	6.4992 - 1	9.1893 - 3	8.0838 - 7	2.6009 - 5	28.966
193000	191230	465.96	2.9916	6.2482	8.8343	7.8120	2.5134	28.966
194000	192212	463.54	2.8755	6.0056	8.4914	7.5480	2.4285	28.966
195000	193194	461.12	2.7633	5.7713	8.1601	7.2916	2.3460	28.966
196000	194175	458.69	2.6550	5.5450	7.8401	7.0427	2.2659	28.966
197000	195157	456.27	2.5503	5.3264	7.5311	6.8011	2.1882	28.966
198000	196138	453.85	2.4493	5.1154	7.2327	6.5665	2.1127	28.966
199000	197119	451.42	2.3518	4.9117	6.9447	6.3389	2.0395	28.966
200000	198100	449.00	2.2576	4.7151	6.6668	6.1180	1.9684	28.966
201000	199081	446.58	2.1668	4.5254	6.3985	5.9057	1.8994	28.966
202000	200062	444.16	2.0792 - 1	4.3424 - 1	6.1397 - 3	5.6958 - 7	1.8326 - 5	28.966
203000	201043	441.74	1.9946	4.1659	5.8901	5.4942	1.7677	28.966
204000	202024	439.32	1.9131	3.9956	5.6494	5.2986	1.7043	28.966
205000	203004	436.89	1.8345	3.8314	5.4172	5.1091	1.6438	28.966
206000	203985	434.47	1.7587	3.6731	5.1935	4.9253	1.5847	28.966
207000	204966	432.05	1.6857	3.5206	4.9778	4.7472	1.5274	28.966
208000	205946	429.63	1.6153	3.3736	4.7699	4.5746	1.4718	28.966
209000	206926	427.21	1.5475	3.2319	4.5697	4.4074	1.4180	28.966
210000	207906	424.79	1.4821	3.0955	4.3768	4.2454	1.3659	28.966
211000	208887	422.37	1.4192	2.9641	4.1910	4.0885	1.3154	28.966
212000	209867	419.95	1.3587 - 1	2.8376 - 1	4.0121 - 3	3.9365 - 7	1.2665 - 5	28.966
213000	210847	417.53	1.3004	2.7158	3.8399	3.7894	1.2192	28.966
214000	211826	415.11	1.2442	2.5986	3.6742	3.6470	1.1734	28.966
215000	212806	412.70	1.1902	2.4859	3.5148	3.5092	1.1290	28.966
216000	213786	410.28	1.1383	2.3774	3.3614	3.3758	1.0861	28.966
217000	214765	407.86	1.0883	2.2730	3.2138	3.2468	1.0446	28.966
218000	215745	405.44	1.0403	2.1727	3.0720	3.1220	1.0045	28.966
219000	216724	403.02	9.9410 - 2	2.0762	2.9356	3.0015	9.6565 - 6	28.966
220000	217703	400.60	9.4971	1.9835	2.8045	2.8845	9.2807	28.966
221000	218683	398.19	9.0705	1.8944	2.6785	2.7717	8.9177	28.966

ALTITUDE		TEMP.		PRESSURE		DENSITY		MOL. WEIGHT
Z, ft	H, ft'	T, °R	P, mb	P, lb/ ft ⁻²	P, in. Hg	ρ , lb/ sec ² ft ⁻⁴	ρ , lb ft ⁻³	M
222000	219662	395.77	8.6607 - 2	1.8088 - 1	2.5575 - 3	2.6627 - 7	8.5668 - 6	28.966
223000	220641	393.35	8.2671	1.7266	2.4413	2.5573	8.2278	28.966
224000	221620	390.94	7.8892	1.6477	2.3297	2.4555	7.9002	28.966
225000	222598	388.52	7.5264	1.5719	2.2226	2.3571	7.5838	28.966
226000	223577	386.10	7.1782	1.4992	2.1197	2.2621	7.2782	28.966
227000	224556	383.69	6.8442	1.4294	2.0211	2.1704	6.9832	28.966
228000	225534	381.27	6.5237	1.3625	1.9264	2.0819	6.6984	28.966
229000	226513	378.86	6.2164	1.2983	1.8357	1.9965	6.4235	28.966
230000	227491	376.44	5.9217	1.2368	1.7487	1.9141	6.1583	28.966
231000	228469	374.02	5.6393	1.1778	1.6653	1.8345	5.9025	28.966
232000	229447	371.61	5.3687 - 2	1.1213 - 1	1.5854 - 3	1.7579 - 7	5.6557 - 6	28.966
233000	230426	369.19	5.1094	1.0671	1.5088	1.6839	5.4178	28.966
234000	231404	366.78	4.8611	1.0153	1.4355	1.6126	5.1885	28.966
235000	232381	364.37	4.6234	9.6562 - 2	1.3653	1.5439	4.9674	28.966
236000	233359	361.95	4.3958	9.1809	1.2981	1.4777	4.7545	28.966
237000	234337	359.54	4.1781	8.7262	1.2338	1.4140	4.5493	28.966
238000	235315	357.12	3.9698	8.2911	1.1723	1.3526	4.3517	28.966
239000	236292	354.71	3.7706	7.8751	1.1135	1.2934	4.1615	28.966
240000	237269	352.30	3.5802	7.4774	1.0572	1.2365	3.9784	28.966
241000	238247	349.89	3.3982	7.0972	1.0035	1.1817	3.8021	28.966
242000	239224	347.47	3.2243 - 2	6.7340 - 2	9.5212 - 4	1.1290 - 7	3.6326 - 6	28.966
243000	240201	345.06	3.0581	6.3871	9.0307	1.0784	3.4695	28.966
244000	241178	342.65	2.8995	6.0558	8.5623	1.0296	3.3127	28.966
245000	242155	340.24	2.7481	5.7395	8.1152	9.8278 - 8	3.1620	28.966
246000	243132	337.8	2.604	5.438	7.688	9.378	3.017	28.97
247000	244109	335.4	2.466	5.150	7.281	8.945	2.878	28.97
248000	245085	333.0	2.334	4.875	6.893	8.530	2.744	28.97
249000	246062	330.6	2.209	4.614	6.523	8.131	2.616	28.97
250000	247039	328.2	2.090	4.364	6.171	7.748	2.493	28.97
251000	248015	325.8	1.976	4.127	5.835	7.380	2.374	28.97
252000	248991	323.4	1.868 - 2	3.901 - 2	5.515 - 4	7.027 - 8	2.261 - 6	28.97
253000	249967	320.9	1.764	3.683	5.210	6.689	2.152	28.97
254000	250944	318.5	1.666	3.480	4.921	6.365	2.048	28.97
255000	251920	316.1	1.573	3.285	4.645	6.054	1.948	28.97
256000	252896	313.7	1.484	3.100	4.383	5.756	1.852	28.97
257000	253871	311.3	1.400	2.924	4.134	5.471	1.760	28.97
258000	254847	308.9	1.320	2.756	3.897	5.198	1.672	28.97
259000	255823	306.5	1.243	2.597	3.672	4.937	1.588	28.97
260000	256798	304.1	1.171	2.446	3.459	4.686	1.508	28.97
261000	257774	301.7	1.103	2.303	3.256	4.447	1.431	28.97
262000	258749	299.3	1.038 - 2	2.167 - 2	3.064 - 4	4.218 - 8	1.357 - 6	28.97
263000	259725	298.2	9.759 - 3	2.038	2.882	3.982	1.281	28.97
264000	260700	298.2	9.178	1.917	2.710	3.745	1.205	28.97
265000	261675	298.2	8.633	1.803	2.549	3.523	1.133	28.97
266000	262650	298.2	8.119	1.696	2.398	3.313	1.066	28.97
267000	263625	298.2	7.637	1.595	2.255	3.116	1.003	28.97
268000	264600	298.2	7.183	1.500	2.121	2.931	9.430 - 7	28.97
269000	265574	298.2	6.756	1.411	1.995	2.757	8.870	28.97
270000	266549	298.2	6.354	1.327	1.876	2.593	8.343	28.97
271000	267524	298.2	5.977	1.248	1.765	2.439	7.847	28.97
272000	268498	298.2	5.622 - 3	1.174 - 2	1.660 - 4	2.294 - 8	7.381 - 7	28.97
273000	269472	298.2	5.288	1.104	1.561	2.158	6.942	28.97
274000	270447	298.2	4.974	1.039	1.469	2.029	6.530	28.97
275000	271421	298.2	4.678	9.771 - 3	1.381	1.909	6.142	28.97
276000	272395	298.2	4.400	9.190	1.299	1.796	5.777	28.97
277000	273369	298.2	4.139	8.644	1.222	1.689	5.434	28.97
278000	274343	298.2	3.893	8.131	1.150	1.589	5.111	28.97
279000	275317	298.2	3.662	7.648	1.081	1.494	4.808	28.97
280000	276290	298.2	3.445	7.194	1.017	1.406	4.522	28.97
281000	277264	298.2	3.240	6.767	9.568 - 5	1.322	4.254	28.97

ALTITUDE		TEMP.	PRESSURE			DENSITY		MOL. WEIGHT	
Z, ft	H, ft'	T, °R	P, mb	P, lb./ft. ²	P, in. Hg	ρ , lb sec ² /ft. ⁴	ρ , lb ft. ³	M	
282000	278238	298.2	3.048 - 3	6.365 - 3	9.000 - 5	1.244 - 8	4.001 - 7	28.97	
283000	279211	298.2	2.867	5.988	8.466	1.170	3.764	28.97	
284000	280184	298.2	2.697	5.632	7.963	1.100	3.540	28.97	
285000	281158	298.2	2.537	5.298	7.491	1.035	3.330	28.97	
286000	282131	298.2	2.386	4.984	7.046	9.737 - 9	3.133	28.97	
287000	283104	298.2	2.245	4.688	6.628	9.159	2.947	28.97	
288000	284077	298.2	2.111	4.410	6.235	8.616	2.772	28.97	
289000	285050	298.2	1.986	4.148	5.865	8.104	2.608	28.97	
290000	286023	298.2	1.868	3.902	5.517	7.624	2.453	28.97	
291000	286995	298.2	1.758	3.671	5.190	7.172	2.307	28.97	
292000	287968	298.2	1.653 - 3	3.453 - 3	4.882 - 5	6.746 - 9	2.171 - 7	28.97	
293000	288940	298.2	1.555	3.248	4.593	6.346	2.042	28.97	
294000	289913	298.2	1.463	3.056	4.320	5.970	1.921	28.97	
295000	290885	298.2	1.376	2.874	4.064	5.616	1.807	28.97	
296000	291857	298.2	1.295	2.704	3.823	5.283	1.700	28.97	
297000	292830	298.2	1.218	2.544	3.597	4.970	1.599	28.97	
298000	293802	298.2	1.146	2.393	3.383	4.675	1.504	28.97	
299000	294774	298.2	1.078	2.251	3.183	4.398	1.415	28.97	
300000	295746	299.2	1.014	2.118	2.994	4.123	1.327	28.96	
302000	297689	303.4	8.985 - 4	1.877	2.653	3.603	1.159	28.96	
304000	299632	307.6	7.976 - 4	1.666 - 3	2.355 - 5	3.153 - 9	1.015 - 7	28.96	
306000	301575	311.9	7.092	1.481	2.094	2.766	8.898 - 8	28.95	
308000	303517	316.1	6.316	1.319	1.865	2.430	7.817	28.95	
310000	305459	320.3	5.633	1.177	1.663	2.138	6.880	28.94	
312000	307401	324.5	5.032	1.051	1.486	1.885	6.066	28.94	
314000	309342	328.7	4.502	9.403 - 4	1.330	1.665	5.356	28.93	
316000	311283	332.9	4.034	8.425	1.191	1.473	4.738	28.93	
318000	313224	337.1	3.619	7.559	1.069	1.305	4.197	28.92	
320000	315164	341.3	3.232	6.792	9.603 - 6	1.158	3.724	28.92	
322000	317104	345.5	2.926	6.110	8.640	1.029	3.309	28.92	
324000	319043	349.7	2.636 - 4	5.505 - 4	7.783 - 6	9.154 - 10	2.945 - 8	28.91	
326000	320982	353.9	2.377	4.965	7.020	8.158	2.625	28.91	
328000	322921	358.1	2.147	4.484	6.341	7.280	2.342	28.90	
330000	324859	362.2	1.942	4.055	5.733	6.506	2.093	28.90	
332000	326797	366.4	1.758	3.671	5.191	5.822	1.873	28.89	
334000	328735	370.6	1.593	3.327	4.705	5.216	1.678	28.89	
336000	330672	374.8	1.446	3.019	4.269	4.680	1.506	28.88	
338000	332609	378.9	1.313	2.743	3.870	4.204	1.353	28.88	
340000	334546	383.1	1.194	2.494	3.527	3.781	1.216	28.87	
342000	336482	387.3	1.087	2.271	3.211	3.404	1.095	28.87	
344000	338418	391.4	9.908 - 5	2.069 - 4	2.926 - 6	3.069 - 10	9.873 - 9	28.86	
346000	340353	395.6	9.039	1.888	2.669	2.770	8.911	28.86	
348000	342288	399.8	8.254	1.724	2.437	2.502	8.051	28.85	
350000	344223	403.9	7.544	1.576	2.228	2.263	7.282	28.85	
352000	346157	422.7	6.912	1.444	2.041	1.981	6.374	28.84	
354000	348091	443.7	6.359	1.328	1.878	1.736	5.585	28.83	
356000	350025	464.7	5.873	1.227	1.734	1.531	4.924	28.83	
358000	351958	485.7	5.444	1.137	1.608	1.357	4.366	28.82	
360000	353891	506.8	5.063	1.057	1.495	1.209	3.891	28.82	
362000	355823	527.7	4.722	9.862 - 5	1.394	1.083	3.484	28.81	
364000	357756	548.7	4.416 - 5	9.224 - 5	1.304 - 6	9.739 - 11	3.133 - 9	28.81	
366000	359687	569.7	4.141	8.648	1.223	8.794	2.829	28.80	
368000	361619	590.6	3.892	8.128	1.149	7.970	2.564	28.79	
370000	363550	611.6	3.666	7.656	1.082	7.248	2.332	28.79	
372000	365481	632.5	3.460	7.226	1.022	6.613	2.128	28.78	
374000	367411	653.4	3.272	6.833	9.661 - 7	6.052	1.947	28.78	
376000	369341	674.3	3.099	6.473	9.152	5.555	1.787	28.77	
378000	371270	695.2	2.941	6.142	8.684	5.111	1.644	28.76	
380000	373200	716.1	2.795	5.837	8.253	4.715	1.517	28.76	
382000	375129	736.9	2.660	5.556	7.855	4.360	1.403	28.75	

ALTITUDE		TEMP.	PRESSURE		DENSITY		WEIGHT	
Z, ft	H, ft'	T, °R	P, mb	P, lbf ft ⁻²	P, in. Hg	ρ , lbf sec ² ft ⁻⁴	ρ , lb ft ⁻³	M
384000	377057	757.8	2.535 - 5	5.295 - 5	7.487 - 7	4.040 -11	1.300 - 9	28.75
386000	378985	778.6	2.420	5.054	7.146	3.752	1.207	28.74
388000	380913	799.4	2.312	4.829	6.828	3.491	1.123	28.73
390000	382840	820.2	2.212	4.620	6.533	3.255	1.047	28.73
392000	384767	841.0	2.119	4.425	6.257	3.040	9.780 -10	28.72
394000	386694	861.7	2.032	4.243	5.999	2.844	9.149	28.71
396000	388620	882.5	1.950	4.072	5.758	2.664	8.572	28.71
398000	390546	903.2	1.873	3.912	5.532	2.500	8.045	28.70
400000	392472	923.9	1.801	3.762	5.319	2.350	7.561	28.69
402000	394397	944.6	1.734	3.621	5.120	2.212	7.116	28.69
404000	396322	965.3	1.670 - 5	3.488 - 5	4.932 - 7	2.084 -11	6.706 -10	28.68
406000	398247	986.0	1.610	3.363	4.754	1.967	6.328	28.67
408000	400171	1007	1.553	3.244	4.587	1.858	5.978	28.66
410000	402095	1027	1.500	3.132	4.429	1.758	5.655	28.66
412000	404018	1048	1.449	3.027	4.279	1.664	5.355	28.65
414000	405941	1068	1.401	2.926	4.138	1.578	5.076	28.64
416000	407864	1089	1.356	2.831	4.003	1.497	4.817	28.64
418000	409786	1110	1.312	2.741	3.875	1.422	4.576	28.63
420000	411708	1130	1.271	2.655	3.754	1.352	4.351	28.62
422000	413630	1151	1.232	2.574	3.639	1.287	4.141	28.61
424000	415551	1171	1.195 - 5	2.496 - 5	3.529 - 7	1.226 -11	3.945 -10	28.60
426000	417472	1192	1.160	2.422	3.424	1.169	3.761	28.60
428000	419393	1212	1.126	2.351	3.325	1.115	3.589	28.59
430000	421313	1233	1.094	2.284	3.229	1.065	3.427	28.58
432000	423233	1253	1.063	2.220	3.138	1.018	3.276	28.57
434000	425152	1273	1.033	2.158	3.052	9.737 -12	3.133	28.56
436000	427071	1294	1.005	2.099	2.968	9.320	2.999	28.56
438000	428990	1314	9.782 - 6	2.043	2.889	8.927	2.872	28.55
440000	430908	1334	9.524	1.989	2.812	8.556	2.753	28.54
442000	432826	1355	9.277	1.937	2.739	8.206	2.640	28.53
444000	434744	1375	9.039 - 6	1.888 - 5	2.669 - 7	7.875 -12	2.534 -10	28.52
446000	436661	1395	8.811	1.840	2.602	7.563	2.433	28.51
448000	438578	1416	8.592	1.795	2.537	7.267	2.338	28.50
450000	440495	1436	8.382	1.751	2.475	6.987	2.248	28.49
452000	442411	1456	8.180	1.708	2.415	6.722	2.163	28.48
454000	444327	1476	7.985	1.668	2.358	6.470	2.082	28.47
456000	446242	1496	7.798	1.629	2.303	6.231	2.005	28.46
458000	448157	1517	7.617	1.591	2.249	6.004	1.932	28.46
460000	450072	1537	7.443	1.555	2.198	5.788	1.862	28.45
462000	451987	1557	7.276	1.520	2.148	5.583	1.796	28.44
464000	453901	1577	7.114 - 6	1.486 - 5	2.101 - 7	5.387 -12	1.733 -10	28.43
466000	455814	1597	6.958	1.453	2.055	5.201	1.673	28.42
468000	457728	1617	6.807	1.422	2.010	5.024	1.616	28.41
470000	459641	1637	6.662	1.391	1.967	4.854	1.562	28.39
472000	461553	1657	6.521	1.362	1.926	4.693	1.510	28.38
474000	463466	1677	6.385	1.334	1.885	4.539	1.460	28.37
476000	465377	1697	6.254	1.306	1.847	4.391	1.413	28.36
478000	467289	1716	6.126	1.280	1.809	4.251	1.368	28.35
480000	469200	1736	6.003	1.254	1.773	4.116	1.324	28.34
482000	471111	1756	5.884	1.229	1.738	3.987	1.283	28.33
484000	473022	1776	5.768 - 6	1.205 - 5	1.703 - 7	3.864 -12	1.243 -10	28.32
486000	474932	1796	5.656	1.181	1.670	3.746	1.205	28.31
488000	476841	1815	5.548	1.159	1.638	3.632	1.169	28.29
490000	478751	1835	5.443	1.137	1.607	3.524	1.134	28.28
492000	480660	1855	5.341	1.115	1.577	3.419	1.100	28.27
494000	482569	1874	5.242	1.093	1.548	3.319	1.068	28.26
496000	484477	1894	5.145	1.075	1.519	3.223	1.037	28.25
498000	486385	1914	5.052	1.053	1.492	3.131	1.007	28.23
500000	488292	1933	4.961	1.036	1.465	3.043	9.789 -11	28.22
502000	490200	1953	4.873	1.018	1.439	2.957	9.515	28.21

ALTITUDE		TEMP.	PRESSURE			DENSITY			MOL. WEIGHT				
Z, ft	H, ft'	T, °R	P, mb	P, lb/ft ⁻²	P, in. Hg	ρ, lb/ft ³	ρ, lb/ft ⁻³	M					
504000	492107	1972	4.788	- 6	9.999	- 6	1.414	- 7	2.875	-12	9.251	-11	28.19
506000	494013	1991	4.704		9.825		1.389		2.796		8.997		28.18
508000	495919	2011	4.623		9.656		1.365		2.720		8.753		28.17
510000	497825	2030	4.544		9.491		1.342		2.647		8.517		28.15
512000	499731	2049	4.468		9.331		1.319		2.577		8.291		28.14
514000	501636	2069	4.393		9.175		1.297		2.509		8.072		28.13
516000	503540	2088	4.321		9.024		1.276		2.443		7.862		28.11
518000	505445	2107	4.250		8.876		1.255		2.380		7.659		28.10
520000	507349	2126	4.181		8.732		1.235		2.319		7.463		28.08
522000	509253	2145	4.114		8.592		1.215		2.261		7.273		28.07
524000	511156	2164	4.048	- 6	8.455	- 6	1.195	- 7	2.204	-12	7.091	-11	28.05
526000	513059	2183	3.984		8.322		1.177		2.149		6.914		28.04
528000	514961	2202	3.922		8.192		1.158		2.096		6.744		28.02
530000	516864	2221	3.862		8.065		1.140		2.045		6.579		28.00
532000	518766	2240	3.802		7.941		1.123		1.995		6.420		27.99
534000	520667	2259	3.745		7.821		1.106		1.948		6.266		27.97
536000	522568	2278	3.688		7.703		1.089		1.901		6.118		27.95
538000	524469	2296	3.633		7.588		1.073		1.857		5.973		27.94
540000	526370	2308	3.579		7.476		1.057		1.819		5.853		27.92
542000	528270	2316	3.527		7.366		1.041		1.785		5.742		27.90
544000	530170	2325	3.475	- 6	7.258	- 6	1.026	- 7	1.751	-12	5.633	-11	27.88
546000	532069	2333	3.424		7.152		1.011		1.718		5.527		27.87
548000	533968	2342	3.374		7.048		9.965	- 8	1.686		5.423		27.85
550000	535867	2350	3.326		6.946		9.820		1.654		5.322		27.83
552000	537765	2358	3.278		6.846		9.679		1.623		5.223		27.81
554000	539663	2367	3.231		6.747		9.540		1.593		5.127		27.79
556000	541561	2375	3.184		6.651		9.404		1.564		5.032		27.77
558000	543458	2383	3.139		6.556		9.270		1.535		4.940		27.75
560000	545355	2392	3.095		6.464		9.139		1.507		4.850		27.73
562000	547252	2400	3.051		6.372		9.010		1.480		4.761		27.71
564000	549148	2408	3.008	- 5	6.283	- 6	8.883	- 8	1.453	-12	4.675	-11	27.69
566000	551044	2416	2.966		6.195		8.759		1.427		4.591		27.67
568000	552939	2424	2.925		6.109		8.637		1.401		4.508		27.64
570000	554834	2432	2.884		6.024		8.518		1.376		4.428		27.62
572000	556729	2440	2.845		5.941		8.400		1.352		4.349		27.60
574000	558624	2445	2.805		5.859		8.285		1.329		4.276		27.57
576000	560518	2448	2.767		5.779		8.171		1.308		4.209		27.55
578000	562411	2451	2.729		5.700		8.059		1.288		4.143		27.53
580000	564305	2454	2.692		5.622		7.949		1.267		4.078		27.50
582000	566198	2456	2.655		5.546		7.841		1.248		4.014		27.48
584000	568091	2459	2.619	- 6	5.470	- 6	7.734	- 8	1.228	-12	3.952	-11	27.45
586000	569983	2461	2.584		5.396		7.629		1.209		3.890		27.43
588000	571875	2464	2.549		5.323		7.526		1.190		3.830		27.40
590000	573767	2466	2.514		5.251		7.424		1.172		3.771		27.37
592000	575658	2469	2.480		5.180		7.324		1.154		3.713		27.34
594000	577549	2471	2.447		5.111		7.226		1.136		3.656		27.32
596000	579439	2474	2.414		5.042		7.129		1.119		3.599		27.29
598000	581330	2476	2.382		4.974		7.033		1.102		3.544		27.26
600000	583219	2478	2.350		4.908		6.939		1.085		3.490		27.23
602000	585109	2480	2.319		4.843		6.847		1.068		3.437		27.20
604000	586998	2482	2.288	- 6	4.778	- 6	6.756	- 8	1.052	-12	3.384	-11	27.17
606000	588887	2484	2.257		4.715		6.666		1.036		3.333		27.13
608000	590775	2486	2.228		4.652		6.578		1.020		3.282		27.10
610000	592663	2488	2.198		4.591		6.491		1.005		3.233		27.07
612000	594551	2490	2.169		4.530		6.405		9.895	-13	3.184		27.04
614000	596439	2491	2.141		4.471		6.321		9.746		3.136		27.00
616000	598326	2493	2.112		4.412		6.238		9.599		3.089		26.97
618000	600212	2495	2.085		4.354		6.156		9.455		3.042		26.94
620000	602099	2497	2.057		4.297		6.076		9.314		2.997		26.91
622000	603985	2499	2.031		4.241		5.996		9.174		2.952		26.87

ALTITUDE		TEMP.	PRESSURE		DENSITY		MOL. WEIGHT	
Z, ft	H, ft	T, °R	P, mb	P, lb/ft ⁻²	P, in. Hg	ρ , lb/sec ² ft ⁻⁴	ρ , lb ft ⁻³	M
624000	605870	2500	2.004 - 6	4.186 - 6	5.918 - 8	9.038 -13	2.908 -11	26.84
626000	607756	2502	1.978	4.131	5.841	8.903	2.864	26.81
628000	609641	2504	1.952	4.078	5.765	8.771	2.822	26.78
630000	611525	2506	1.927	4.025	5.691	8.641	2.780	26.74
632000	613409	2507	1.902	3.973	5.617	8.513	2.739	26.71
634000	615293	2509	1.878	3.922	5.545	8.387	2.699	26.68
636000	617177	2511	1.854	3.871	5.474	8.264	2.659	26.65
638000	619060	2512	1.830	3.822	5.403	8.142	2.620	26.61
640000	620943	2514	1.806	3.773	5.334	8.023	2.581	26.58
642000	622825	2516	1.783	3.724	5.266	7.905	2.543	26.55
644000	624707	2517	1.760 - 6	3.677 - 6	5.199 - 8	7.790 -13	2.506 -11	26.52
646000	626589	2519	1.738	3.630	5.133	7.676	2.470	26.48
648000	628471	2521	1.716	3.584	5.067	7.564	2.434	26.45
650000	630352	2522	1.694	3.538	5.003	7.455	2.398	26.42
652000	632232	2524	1.673	3.494	4.940	7.346	2.364	26.39
654000	634113	2526	1.652	3.450	4.877	7.240	2.329	26.36
656000	635993	2527	1.631	3.406	4.816	7.136	2.296	26.32
658000	637873	2529	1.610	3.363	4.755	7.033	2.263	26.29
660000	639752	2530	1.590	3.321	4.696	6.932	2.230	26.26
662000	641631	2532	1.570	3.279	4.637	6.832	2.198	26.23
664000	643510	2533	1.551 - 6	3.238 - 6	4.579 - 8	6.735 -13	2.167 -11	26.20
666000	645388	2535	1.531	3.198	4.522	6.638	2.136	26.16
668000	647266	2537	1.512	3.158	4.465	6.544	2.105	26.13
670000	649143	2538	1.493	3.119	4.410	6.450	2.075	26.10
672000	651021	2540	1.475	3.080	4.355	6.359	2.046	26.07
674000	652897	2541	1.457	3.042	4.301	6.269	2.017	26.04
676000	654774	2543	1.439	3.005	4.248	6.180	1.988	26.00
678000	656650	2544	1.421	2.967	4.196	6.094	1.961	25.97
680000	658526	2544	1.403	2.931	4.144	6.011	1.934	25.94
682000	660402	2544	1.386	2.895	4.093	5.930	1.908	25.91
684000	662277	2544	1.369 - 6	2.859 - 6	4.043 - 8	5.849 -13	1.882 -11	25.88
686000	664151	2544	1.352	2.824	3.993	5.770	1.857	25.85
688000	666026	2544	1.336	2.790	3.945	5.693	1.832	25.81
690000	667900	2544	1.319	2.756	3.896	5.616	1.807	25.78
692000	669774	2545	1.303	2.722	3.849	5.540	1.783	25.75
694000	671647	2545	1.287	2.689	3.802	5.466	1.759	25.72
696000	673520	2545	1.272	2.656	3.756	5.393	1.735	25.69
698000	675393	2545	1.256	2.624	3.710	5.321	1.712	25.66
700000	677265	2545	1.241	2.592	3.665	5.249	1.689	25.63
702000	679137	2545	1.226	2.561	3.621	5.179	1.666	25.59
704000	681009	2545	1.211 - 6	2.530 - 6	3.577 - 8	5.110 -13	1.644 -11	25.56
706000	682880	2545	1.197	2.499	3.534	5.042	1.622	25.53
708000	684751	2545	1.182	2.469	3.491	4.975	1.601	25.50
710000	686622	2545	1.168	2.439	3.449	4.909	1.580	25.47
712000	688492	2545	1.154	2.410	3.407	4.844	1.559	25.44
714000	690362	2545	1.140	2.381	3.366	4.780	1.538	25.41
716000	692232	2545	1.126	2.352	3.326	4.717	1.518	25.38
718000	694101	2546	1.113	2.324	3.286	4.655	1.498	25.35
720000	695970	2546	1.100	2.296	3.247	4.593	1.478	25.32
722000	697838	2546	1.086	2.269	3.208	4.533	1.458	25.29
724000	699707	2546	1.073 - 6	2.242 - 6	3.170 - 8	4.473 -13	1.439 -11	25.25
726000	701574	2546	1.061	2.215	3.132	4.415	1.420	25.22
728000	703442	2546	1.048	2.189	3.095	4.357	1.402	25.19
730000	705309	2546	1.036	2.163	3.058	4.300	1.383	25.16
732000	707176	2546	1.023	2.137	3.022	4.243	1.365	25.13
734000	709042	2546	1.011	2.112	2.986	4.188	1.347	25.10
736000	710909	2546	9.992 - 7	2.087	2.951	4.134	1.330	25.07
738000	712774	2546	9.874	2.062	2.916	4.080	1.313	25.04
740000	714640	2546	9.758	2.038	2.881	4.027	1.296	25.01
742000	716505	2546	9.643	2.014	2.847	3.974	1.279	24.98

ALTITUDE		TEMP.	PRESSURE		DENSITY		MOL. WEIGHT						
Z, ft	H, ft'	T, °R	P, mb	P, lb/ft ²	P, in. Hg	ρ, lb/ft ³	ρ, lb/ft ³	M					
504000	492107	1972	4.788	- 6	9.999	- 6	1.414	- 7	2.875	-12	9.251	-11	28.19
506000	494015	1991	4.704		9.825		1.389		2.796		8.997		28.18
508000	495919	2011	4.623		9.656		1.365		2.720		8.753		28.17
510000	497825	2030	4.544		9.491		1.342		2.647		8.517		28.15
512000	499731	2049	4.468		9.331		1.319		2.577		8.291		28.14
514000	501636	2069	4.393		9.175		1.297		2.509		8.072		28.13
516000	503540	2088	4.321		9.024		1.276		2.443		7.862		28.11
518000	505445	2107	4.250		8.876		1.255		2.380		7.659		28.10
520000	507349	2126	4.181		8.732		1.235		2.319		7.463		28.08
522000	509253	2145	4.114		8.592		1.215		2.261		7.273		28.07
524000	511156	2164	4.048	- 6	8.455	- 6	1.195	- 7	2.204	-12	7.091	-11	28.05
526000	513059	2183	3.984		8.322		1.177		2.149		6.914		28.04
528000	514961	2202	3.922		8.192		1.158		2.096		6.744		28.02
530000	516864	2221	3.862		8.065		1.140		2.045		6.579		28.00
532000	518766	2240	3.802		7.941		1.123		1.995		6.420		27.99
534000	520667	2259	3.745		7.821		1.106		1.948		6.266		27.97
536000	522568	2278	3.688		7.703		1.089		1.901		6.118		27.95
538000	524469	2296	3.633		7.588		1.073		1.857		5.973		27.94
540000	526370	2308	3.579		7.476		1.057		1.819		5.853		27.92
542000	528270	2316	3.527		7.366		1.041		1.785		5.742		27.90
544000	530170	2325	3.475	- 6	7.258	- 6	1.026	- 7	1.751	-12	5.633	-11	27.88
546000	532069	2333	3.424		7.152		1.011		1.718		5.527		27.87
548000	533968	2342	3.374		7.048		9.965	- 8	1.686		5.423		27.85
550000	535867	2350	3.326		6.946		9.820		1.654		5.322		27.83
552000	537765	2358	3.278		6.846		9.679		1.623		5.223		27.81
554000	539663	2367	3.231		6.747		9.540		1.593		5.127		27.79
556000	541561	2375	3.184		6.651		9.404		1.564		5.032		27.77
558000	543458	2383	3.139		6.556		9.270		1.535		4.940		27.75
560000	545355	2392	3.095		6.464		9.139		1.507		4.850		27.73
562000	547252	2400	3.051		6.372		9.010		1.480		4.761		27.71
564000	549148	2408	3.008	- 6	6.283	- 6	8.883	- 8	1.453	-12	4.675	-11	27.69
566000	551044	2416	2.966		6.195		8.759		1.427		4.591		27.67
568000	552939	2424	2.925		6.109		8.637		1.401		4.508		27.64
570000	554834	2432	2.884		6.024		8.518		1.376		4.428		27.62
572000	556729	2440	2.845		5.941		8.400		1.352		4.349		27.60
574000	558624	2445	2.805		5.859		8.285		1.329		4.276		27.57
576000	560518	2448	2.767		5.779		8.171		1.308		4.209		27.55
578000	562411	2451	2.729		5.700		8.059		1.288		4.143		27.53
580000	564305	2454	2.692		5.622		7.949		1.267		4.078		27.50
582000	566198	2456	2.655		5.546		7.841		1.248		4.014		27.48
584000	568091	2459	2.619	- 6	5.470	- 6	7.734	- 8	1.228	-12	3.992	-11	27.45
586000	569983	2461	2.584		5.396		7.629		1.209		3.890		27.43
588000	571875	2464	2.549		5.323		7.526		1.190		3.830		27.40
590000	573767	2466	2.514		5.251		7.424		1.172		3.771		27.37
592000	575658	2469	2.480		5.180		7.324		1.154		3.713		27.34
594000	577549	2471	2.447		5.111		7.226		1.136		3.656		27.32
596000	579439	2474	2.414		5.042		7.129		1.119		3.599		27.29
598000	581330	2476	2.382		4.974		7.033		1.102		3.544		27.26
600000	583219	2478	2.350		4.908		6.939		1.085		3.490		27.23
602000	585109	2480	2.319		4.843		6.847		1.068		3.437		27.20
604000	586998	2482	2.288	- 6	4.778	- 6	6.756	- 8	1.052	-12	3.384	-11	27.17
606000	588887	2484	2.257		4.715		6.666		1.036		3.333		27.13
608000	590775	2486	2.228		4.652		6.578		1.020		3.282		27.10
610000	592663	2488	2.198		4.591		6.491		1.005		3.233		27.07
612000	594551	2490	2.169		4.530		6.405		9.895	-13	3.184		27.04
614000	596439	2491	2.141		4.471		6.321		9.746		3.136		27.00
616000	598326	2493	2.112		4.412		6.238		9.599		3.089		26.97
618000	600212	2495	2.085		4.354		6.156		9.455		3.042		26.94
620000	602099	2497	2.057		4.297		6.076		9.314		2.997		26.91
622000	603985	2499	2.031		4.241		5.996		9.174		2.952		26.87

ALTITUDE		TEMP.	PRESSURE		DENSITY		MOL. WEIGHT
Z, ft	H, ft	T, °R	P, mb	P, lb/ft ²	P, in. Hg	ρ , lb/sec ² ft ⁻⁴	M
624000	605870	2500	2.004 - 6	4.186 - 6	5.918 - 8	9.058 -13	26.04
626000	607756	2502	1.978	4.131	5.841	8.903	26.81
628000	609641	2504	1.952	4.078	5.765	8.771	26.78
630000	611525	2506	1.927	4.025	5.691	8.641	26.74
632000	613409	2507	1.902	3.973	5.617	8.513	26.71
634000	615293	2509	1.878	3.922	5.545	8.387	26.68
636000	617177	2511	1.854	3.871	5.474	8.264	26.65
638000	619060	2512	1.830	3.822	5.403	8.142	26.61
640000	620943	2514	1.806	3.773	5.334	8.023	26.58
642000	622825	2516	1.783	3.724	5.266	7.905	26.55
644000	624707	2517	1.760 - 6	3.677 - 6	5.199 - 8	7.790 -13	26.52
646000	626589	2519	1.738	3.630	5.133	7.676	26.48
648000	628471	2521	1.716	3.584	5.067	7.564	26.45
650000	630352	2522	1.694	3.538	5.003	7.455	26.42
652000	632232	2524	1.673	3.494	4.940	7.346	26.39
654000	634113	2526	1.652	3.450	4.877	7.240	26.36
656000	635993	2527	1.631	3.406	4.816	7.136	26.32
658000	637873	2529	1.610	3.363	4.755	7.033	26.29
660000	639752	2530	1.590	3.321	4.696	6.932	26.26
662000	641631	2532	1.570	3.279	4.637	6.832	26.23
664000	643510	2533	1.551 - 6	3.238 - 6	4.579 - 8	6.735 -13	26.20
666000	645388	2535	1.531	3.198	4.522	6.638	26.16
668000	647266	2537	1.512	3.158	4.465	6.544	26.13
670000	649143	2538	1.493	3.119	4.410	6.450	26.10
672000	651021	2540	1.475	3.080	4.355	6.359	26.07
674000	652897	2541	1.457	3.042	4.301	6.269	26.04
676000	654774	2543	1.439	3.005	4.248	6.180	26.00
678000	656650	2544	1.421	2.967	4.196	6.094	25.97
680000	658526	2544	1.403	2.931	4.144	6.011	25.94
682000	660402	2544	1.386	2.895	4.093	5.930	25.91
684000	662277	2544	1.369 - 6	2.859 - 6	4.043 - 8	5.849 -13	25.88
686000	664151	2544	1.352	2.824	3.993	5.770	25.85
688000	666026	2544	1.336	2.790	3.945	5.693	25.81
690000	667900	2544	1.319	2.756	3.896	5.616	25.78
692000	669774	2545	1.303	2.722	3.849	5.540	25.75
694000	671647	2545	1.287	2.689	3.802	5.466	25.72
696000	673520	2545	1.272	2.656	3.756	5.393	25.69
698000	675393	2545	1.256	2.624	3.710	5.321	25.66
700000	677265	2545	1.241	2.592	3.665	5.249	25.63
702000	679137	2545	1.226	2.561	3.621	5.179	25.59
704000	681009	2545	1.211 - 6	2.530 - 6	3.577 - 8	5.110 -13	25.56
706000	682880	2545	1.197	2.499	3.534	5.042	25.53
708000	684751	2545	1.182	2.469	3.491	4.975	25.50
710000	686622	2545	1.168	2.439	3.449	4.909	25.47
712000	688492	2545	1.154	2.410	3.407	4.844	25.44
714000	690362	2545	1.140	2.381	3.366	4.780	25.41
716000	692232	2545	1.126	2.352	3.326	4.717	25.38
718000	694101	2546	1.113	2.324	3.286	4.655	25.35
720000	695970	2546	1.100	2.296	3.247	4.593	25.32
722000	697838	2546	1.086	2.269	3.208	4.533	25.29
724000	699707	2546	1.073 - 6	2.242 - 6	3.170 - 8	4.473 -13	25.25
726000	701574	2546	1.061	2.215	3.132	4.415	25.22
728000	703442	2546	1.048	2.189	3.095	4.357	25.19
730000	705309	2546	1.036	2.163	3.058	4.300	25.16
732000	707176	2546	1.023	2.137	3.022	4.243	25.13
734000	709042	2546	1.011	2.112	2.986	4.188	25.10
736000	710909	2546	9.992 - 7	2.087	2.951	4.134	25.07
738000	712774	2546	9.874	2.062	2.916	4.080	25.04
740000	714640	2546	9.758	2.038	2.881	4.027	25.01
742000	716505	2546	9.643	2.014	2.847	3.974	24.98

ALTITUDE		TEMP.	PRESSURE			DENSITY			MOL. WEIGHT
Z, ft	H, ft'	T, °R	P, mb	P, lb/ft ²	P, in. Hg	ρ , lb/ft ³	ρ , lb/ft ³	M	
744000	718370	2546	9.529 - 7	1.990 - 6	2.814 - 8	3.923 -13	1.262 -11	24.95	
746000	720234	2546	9.417	1.967	2.781	3.872	1.246	24.92	
748000	722098	2546	9.307	1.944	2.748	3.822	1.230	24.89	
750000	723962	2546	9.198	1.921	2.716	3.773	1.214	24.86	
752000	725825	2546	9.090	1.899	2.684	3.724	1.198	24.83	
754000	727688	2546	8.984	1.876	2.653	3.676	1.183	24.80	
756000	729551	2546	8.879	1.854	2.622	3.629	1.168	24.77	
758000	731413	2546	8.776	1.833	2.591	3.582	1.153	24.74	
760000	733275	2546	8.674	1.812	2.561	3.536	1.138	24.72	
762000	735137	2546	8.573	1.790	2.532	3.491	1.123	24.69	
764000	736998	2546	8.473 - 7	1.770 - 6	2.502 - 8	3.447 -13	1.109 -11	24.66	
766000	738859	2546	8.375	1.749	2.473	3.403	1.095	24.63	
768000	740719	2546	8.278	1.729	2.445	3.359	1.081	24.60	
770000	742580	2546	8.183	1.709	2.416	3.316	1.067	24.57	
772000	744440	2546	8.088	1.689	2.388	3.274	1.053	24.54	
774000	746299	2547	7.995	1.670	2.361	3.233	1.040	24.51	
776000	748158	2547	7.903	1.651	2.334	3.192	1.027	24.48	
778000	750017	2547	7.812	1.632	2.307	3.151	1.014	24.45	
780000	751876	2547	7.723	1.613	2.280	3.111	1.001	24.43	
782000	753734	2547	7.634	1.594	2.254	3.072	9.884 -12	24.40	
784000	755592	2547	7.547 - 7	1.576 - 6	2.229 - 8	3.033 -13	9.760 -12	24.37	
786000	757449	2547	7.460	1.558	2.203	2.995	9.637	24.34	
788000	759307	2547	7.375	1.540	2.178	2.958	9.516	24.31	
790000	761163	2547	7.291	1.523	2.153	2.920	9.396	24.28	
792000	763020	2547	7.208	1.505	2.129	2.884	9.278	24.26	
794000	764876	2547	7.126	1.488	2.104	2.848	9.162	24.23	
796000	766732	2547	7.045	1.471	2.080	2.812	9.047	24.20	
798000	768587	2547	6.966	1.455	2.057	2.777	8.934	24.17	
800000	770442	2547	6.887	1.438	2.034	2.742	8.823	24.14	
805000	775079	2547	6.694	1.398	1.977	2.658	8.551	24.07	
810000	779713	2547	6.507 - 7	1.359 - 6	1.922 - 8	2.576 -13	8.288 -12	24.01	
815000	784345	2547	6.326	1.321	1.868	2.497	8.055	23.94	
820000	788975	2547	6.151	1.285	1.816	2.421	7.789	23.87	
825000	793602	2548	5.981	1.249	1.766	2.347	7.532	23.80	
830000	798228	2548	5.816	1.215	1.717	2.276	7.283	23.74	
835000	802851	2548	5.656	1.181	1.670	2.207	7.102	23.67	
840000	807473	2548	5.502	1.149	1.625	2.141	6.888	23.60	
845000	812092	2548	5.352	1.118	1.580	2.077	6.681	23.54	
850000	816709	2548	5.206	1.087	1.537	2.014	6.481	23.48	
855000	821324	2549	5.065	1.058	1.496	1.954	6.288	23.41	
860000	825936	2549	4.928 - 7	1.029 - 6	1.455 - 8	1.896 -13	6.101 -12	23.35	
865000	830547	2549	4.795	1.002	1.416	1.840	5.920	23.29	
870000	835156	2549	4.667	9.747 - 7	1.378	1.786	5.743	23.22	
875000	839762	2550	4.542	9.486	1.341	1.733	5.576	23.16	
880000	844366	2550	4.421	9.233	1.305	1.682	5.412	23.10	
885000	848969	2550	4.303	8.988	1.271	1.633	5.254	23.04	
890000	853569	2551	4.189	8.750	1.237	1.585	5.101	22.98	
895000	858167	2551	4.079	8.518	1.204	1.539	4.952	22.92	
900000	862762	2551	3.971	8.294	1.173	1.495	4.809	22.86	
905000	867356	2552	3.867	8.076	1.142	1.451	4.670	22.80	
910000	871948	2552	3.766 - 7	7.865 - 7	1.112 - 8	1.410 -13	4.535 -12	22.74	
915000	876537	2553	3.668	7.660	1.083	1.369	4.405	22.69	
920000	881125	2553	3.572	7.461	1.055	1.330	4.279	22.63	
925000	885710	2554	3.480	7.267	1.028	1.292	4.157	22.57	
930000	890293	2554	3.390	7.080	1.001	1.255	4.039	22.52	
935000	894874	2555	3.302	6.897	9.752 - 9	1.220	3.924	22.46	
940000	899453	2555	3.218	6.720	9.502	1.185	3.813	22.41	
945000	904030	2556	3.135	6.548	9.258	1.152	3.706	22.35	
950000	908605	2557	3.055	6.381	9.022	1.119	3.602	22.30	
955000	913177	2557	2.977	6.219	8.792	1.088	3.501	22.25	

ALTITUDE		TEMP.	PRESSURE		DENSITY		MOL. WEIGHT	
Z, ft	H, ft'	T, °R	P, mb	P, lb/ft ²	P, in. Hg	ρ, lb/sec ² ft ⁻⁴	ρ, lb ft ⁻³	M
960000	917748	2558	2.902 - 7	6.061 - 7	8.569 - 9	1.058 -13	3.403 -12	22.19
965000	922316	2559	2.829	5.908	8.353	1.028	3.308	22.14
970000	926883	2559	2.757	5.759	8.142	9.997 -14	3.216	22.09
975000	931447	2560	2.688	5.614	7.937	9.720	3.127	22.04
980000	936009	2561	2.621	5.473	7.738	9.452	3.041	21.99
985000	940569	2562	2.555	5.336	7.545	9.192	2.957	21.94
990000	945127	2563	2.491	5.203	7.357	8.939	2.876	21.89
995000	949683	2563	2.430	5.074	7.174	8.695	2.798	21.84
1000000	954237	2564	2.369	4.949	6.997	8.458	2.721	21.79
1005000	958789	2565	2.311	4.826	6.824	8.228	2.647	21.74
1010000	963339	2566	2.254 - 7	4.708 - 7	6.656 - 9	8.005 -14	2.576 -12	21.70
1015000	967886	2567	2.199	4.592	6.493	7.789	2.506	21.65
1020000	972432	2568	2.145	4.480	6.334	7.579	2.438	21.60
1025000	976975	2569	2.093	4.370	6.179	7.375	2.373	21.56
1030000	981517	2570	2.042	4.264	6.029	7.178	2.309	21.51
1035000	986056	2571	1.992	4.161	5.883	6.986	2.248	21.46
1040000	990593	2572	1.944	4.060	5.740	6.800	2.188	21.42
1045000	995128	2573	1.897	3.962	5.602	6.619	2.130	21.38
1050000	999661	2574	1.851	3.867	5.467	6.444	2.073	21.33
1055000	1004192	2576	1.807	3.774	5.336	6.274	2.019	21.29
1060000	1008721	2577	1.764 - 7	3.684 - 7	5.209 - 9	6.109 -14	1.966 -12	21.25
1065000	1013248	2578	1.722	3.596	5.085	5.949	1.914	21.20
1070000	1017773	2579	1.681	3.511	4.964	5.793	1.864	21.16
1075000	1022296	2580	1.641	3.427	4.846	5.642	1.815	21.12
1080000	1026816	2582	1.602	3.346	4.732	5.495	1.768	21.08
1085000	1031335	2583	1.563	3.268	4.620	5.353	1.722	21.04
1090000	1035851	2584	1.528	3.191	4.512	5.214	1.678	21.00
1095000	1040366	2586	1.492	3.116	4.406	5.080	1.634	20.96
1100000	1044878	2587	1.457	3.043	4.303	4.949	1.592	20.92
1105000	1049389	2588	1.423	2.972	4.203	4.822	1.551	20.88
1110000	1053897	2590	1.390 - 7	2.903 - 7	4.105 - 9	4.699 -14	1.512 -12	20.84
1115000	1058405	2591	1.358	2.836	4.010	4.579	1.473	20.80
1120000	1062908	2593	1.327	2.771	3.917	4.462	1.436	20.76
1125000	1067410	2594	1.296	2.707	3.827	4.349	1.399	20.72
1130000	1071910	2596	1.266	2.645	3.739	4.239	1.364	20.69
1135000	1076408	2597	1.237	2.584	3.654	4.132	1.330	20.65
1140000	1080904	2599	1.209	2.525	3.570	4.028	1.296	20.61
1145000	1085398	2600	1.181	2.468	3.489	3.927	1.264	20.58
1150000	1089890	2602	1.155	2.411	3.410	3.829	1.232	20.54
1155000	1094380	2604	1.128	2.357	3.332	3.734	1.201	20.51
1160000	1098868	2605	1.103 - 7	2.304 - 7	3.257 - 9	3.641 -14	1.171 -12	20.47
1165000	1103353	2607	1.078	2.252	3.184	3.550	1.142	20.44
1170000	1107837	2609	1.054	2.201	3.112	3.463	1.114	20.40
1175000	1112319	2610	1.030	2.152	3.043	3.377	1.087	20.37
1180000	1116799	2612	1.007	2.104	2.975	3.294	1.060	20.34
1185000	1121276	2614	9.848 - 8	2.057	2.908	3.213	1.034	20.30
1190000	1125752	2616	9.630	2.011	2.844	3.135	1.009	20.27
1195000	1130226	2617	9.416	1.967	2.781	3.058	9.839 -13	20.24
1200000	1134697	2619	9.208	1.923	2.719	2.984	9.600	20.20
1205000	1139167	2621	9.005	1.881	2.659	2.911	9.367	20.17
1210000	1143634	2623	8.807 - 8	1.839 - 7	2.601 - 9	2.841 -14	9.140 -13	20.14
1215000	1148100	2625	8.614	1.799	2.544	2.772	8.920	20.11
1220000	1152563	2627	8.426	1.760	2.488	2.706	8.705	20.08
1225000	1157025	2629	8.242	1.721	2.434	2.641	8.496	20.05
1230000	1161484	2630	8.063	1.684	2.381	2.577	8.292	20.02
1235000	1165941	2632	7.888	1.647	2.329	2.516	8.094	19.99
1240000	1170397	2634	7.718	1.612	2.279	2.456	7.902	19.96
1245000	1174850	2636	7.551	1.577	2.230	2.398	7.714	19.93
1250000	1179302	2638	7.389	1.543	2.182	2.341	7.531	19.90
1255000	1183751	2640	7.230	1.510	2.135	2.285	7.353	19.87

ALTITUDE		TEMP.	PRESSURE		DENSITY		MOL. WEIGHT	
Z, ft	H, ft	T, °R	P, mb	P, lb/ft ²	P, in. Hg	ρ , lb/sec ² ft ⁴	ρ , lb/ft ³	M
1260000	1188198	2642	7.075 - 8	1.478 - 7	2.089 - 9	2.232 -14	7.180 -13	19.84
1265000	1192644	2645	6.924	1.446	2.045	2.179	7.011	19.81
1270000	1197087	2647	6.777	1.415	2.001	2.128	6.847	19.78
1275000	1201528	2649	6.633	1.385	1.959	2.078	6.687	19.76
1280000	1205967	2651	6.493	1.356	1.917	2.030	6.531	19.73
1285000	1210405	2653	6.355	1.327	1.877	1.983	6.379	19.70
1290000	1214840	2655	6.222	1.299	1.837	1.937	6.231	19.67
1295000	1219273	2657	6.091	1.272	1.799	1.892	6.087	19.65
1300000	1223704	2659	5.963	1.245	1.761	1.848	5.946	19.62
1305000	1228134	2662	5.839	1.219	1.724	1.806	5.809	19.59
1310000	1232561	2664	5.717 - 8	1.194 - 7	1.688 - 9	1.764 -14	5.676 -13	19.57
1315000	1236986	2666	5.598	1.169	1.653	1.724	5.546	19.54
1320000	1241410	2668	5.482	1.145	1.619	1.684	5.419	19.52
1325000	1245831	2671	5.368	1.121	1.585	1.646	5.296	19.49
1330000	1250250	2673	5.258	1.098	1.553	1.609	5.175	19.47
1335000	1254667	2675	5.149	1.075	1.521	1.572	5.058	19.44
1340000	1259083	2677	5.044	1.053	1.489	1.537	4.944	19.42
1345000	1263496	2680	4.940	1.032	1.459	1.502	4.832	19.39
1350000	1267907	2682	4.840	1.011	1.429	1.468	4.724	19.37
1355000	1272317	2684	4.741	9.902 - 8	1.400	1.435	4.618	19.35
1360000	1276724	2687	4.645 - 8	9.700 - 8	1.372 - 9	1.403 -14	4.514 -13	19.32
1365000	1281129	2689	4.550	9.504	1.344	1.372	4.414	19.30
1370000	1285533	2692	4.458	9.312	1.317	1.341	4.315	19.28
1375000	1289934	2694	4.369	9.124	1.290	1.311	4.219	19.25
1380000	1294334	2696	4.281	8.940	1.264	1.282	4.126	19.23
1385000	1298731	2699	4.195	8.761	1.239	1.254	4.035	19.21
1390000	1303126	2701	4.111	8.585	1.214	1.226	3.946	19.18
1395000	1307520	2704	4.029	8.414	1.190	1.199	3.859	19.16
1400000	1311911	2706	3.948	8.246	1.166	1.173	3.774	19.14
1405000	1316301	2709	3.870	8.083	1.143	1.147	3.692	19.12
1410000	1320688	2711	3.793 - 8	7.922 - 8	1.120 - 9	1.122 -14	3.611 -13	19.10
1415000	1325074	2714	3.718	7.766	1.098	1.098	3.533	19.08
1420000	1329458	2716	3.645	7.613	1.076	1.074	3.456	19.05
1425000	1333839	2719	3.573	7.463	1.055	1.051	3.381	19.03
1430000	1338219	2721	3.503	7.316	1.034	1.028	3.308	19.01
1435000	1342597	2724	3.434	7.173	1.014	1.006	3.236	18.99
1440000	1346972	2726	3.367	7.033	9.944 -10	9.843 -15	3.167	18.97
1445000	1351346	2729	3.302	6.896	9.750	9.632	3.099	18.95
1450000	1355718	2732	3.238	6.762	9.561	9.426	3.033	18.93
1455000	1360088	2734	3.175	6.631	9.375	9.224	2.968	18.91
1460000	1364456	2737	3.113 - 8	6.503 - 8	9.194 -10	9.028 -15	2.905 -13	18.89
1465000	1368822	2739	3.053	6.377	9.017	8.836	2.843	18.87
1470000	1373186	2742	2.995	6.254	8.843	8.649	2.783	18.85
1475000	1377548	2745	2.937	6.134	8.673	8.466	2.724	18.83
1480000	1381908	2747	2.881	6.017	8.507	8.287	2.666	18.81
1485000	1386266	2750	2.826	5.902	8.345	8.113	2.610	18.80
1490000	1390622	2753	2.772	5.789	8.186	7.942	2.555	18.78
1495000	1394976	2755	2.719	5.679	8.030	7.776	2.502	18.76
1500000	1399329	2758	2.668	5.571	7.878	7.614	2.450	18.74
1505000	1403679	2761	2.617	5.466	7.728	7.455	2.399	18.72
1510000	1408027	2764	2.568 - 8	5.363 - 8	7.583 -10	7.300 -15	2.349 -13	18.70
1515000	1412374	2766	2.519	5.262	7.440	7.148	2.300	18.69
1520000	1416718	2769	2.472	5.163	7.300	7.000	2.252	18.67
1525000	1421061	2772	2.426	5.066	7.163	6.856	2.206	18.65
1530000	1425401	2774	2.380	4.971	7.029	6.715	2.160	18.63
1535000	1429740	2777	2.336	4.879	6.898	6.577	2.116	18.61
1540000	1434077	2780	2.292	4.788	6.769	6.442	2.073	18.60
1545000	1438411	2783	2.250	4.699	6.644	6.310	2.030	18.58
1550000	1442744	2786	2.208	4.612	6.521	6.181	1.989	18.56
1555000	1447075	2788	2.167	4.527	6.400	6.055	1.948	18.55

ALTITUDE		TEMP.	PRESSURE		DENSITY		MOL. WEIGHT
Z, ft	H, ft	T, °R	P, mb	P, lb/ft ²	P, in. Hg	ρ , lb sec ² /ft ⁴	M
1560000	1451404	2791	2.127 - 8	4.443 - 8	6.282 -10	5.932 -15	18.53
1565000	1455731	2794	2.088	4.361	6.166	5.812	18.51
1570000	1460056	2797	2.050	4.281	6.053	5.695	18.50
1575000	1464380	2800	2.012	4.203	5.942	5.580	18.48
1580000	1468701	2803	1.976	4.126	5.834	5.468	18.46
1585000	1473020	2805	1.940	4.051	5.727	5.358	18.45
1590000	1477338	2808	1.904	3.977	5.623	5.250	18.43
1595000	1481653	2811	1.870	3.905	5.521	5.146	18.42
1600000	1485967	2814	1.836	3.834	5.421	5.043	18.40
1605000	1490278	2817	1.803	3.765	5.323	4.943	18.39
1610000	1494588	2820	1.770 - 8	3.697 - 8	5.227 -10	4.844 -15	18.37
1615000	1498896	2823	1.738	3.631	5.133	4.749	18.36
1620000	1503202	2826	1.707	3.566	5.041	4.655	18.34
1625000	1507505	2829	1.677	3.502	4.951	4.563	18.33
1630000	1511808	2832	1.647	3.439	4.863	4.473	18.31
1635000	1516108	2834	1.617	3.378	4.776	4.385	18.30
1640000	1520406	2837	1.589	3.318	4.691	4.300	18.28
1645000	1524702	2840	1.560	3.259	4.608	4.216	18.27
1650000	1528997	2843	1.533	3.201	4.526	4.133	18.25
1655000	1533289	2846	1.506	3.145	4.446	4.053	18.24
1660000	1537580	2849	1.479 - 8	3.089 - 8	4.368 -10	3.974 -15	18.22
1665000	1541868	2852	1.453	3.035	4.291	3.897	18.21
1670000	1546155	2855	1.428	2.982	4.216	3.822	18.20
1675000	1550440	2858	1.403	2.930	4.142	3.748	18.18
1680000	1554723	2861	1.378	2.879	4.070	3.676	18.17
1685000	1559004	2864	1.354	2.828	3.999	3.606	18.16
1690000	1563283	2867	1.331	2.779	3.930	3.537	18.14
1695000	1567560	2870	1.308	2.731	3.861	3.469	18.13
1700000	1571836	2873	1.285	2.684	3.795	3.403	18.11
1705000	1576109	2876	1.263	2.637	3.729	3.338	18.10
1710000	1580381	2879	1.241 - 8	2.592 - 8	3.665 -10	3.275 -15	18.09
1715000	1584650	2882	1.220	2.547	3.602	3.213	18.08
1720000	1588918	2885	1.199	2.504	3.540	3.152	18.06
1725000	1593184	2889	1.178	2.461	3.479	3.093	18.05
1730000	1597448	2892	1.158	2.419	3.420	3.035	18.04
1735000	1601710	2895	1.138	2.378	3.362	2.978	18.02
1740000	1605970	2898	1.119	2.337	3.305	2.922	18.01
1745000	1610228	2901	1.100	2.298	3.248	2.867	18.00
1750000	1614485	2904	1.081	2.259	3.193	2.814	17.99
1755000	1618739	2907	1.063	2.220	3.140	2.761	17.97
1760000	1622992	2910	1.045 - 8	2.183 - 8	3.087 -10	2.710 -15	17.96
1765000	1627243	2913	1.028	2.146	3.035	2.660	17.95
1770000	1631492	2916	1.010	2.110	2.984	2.611	17.94
1775000	1635739	2919	9.935 - 9	2.075	2.934	2.563	17.93
1780000	1639984	2922	9.769	2.040	2.885	2.515	17.91
1785000	1644227	2926	9.606	2.006	2.837	2.469	17.90
1790000	1648469	2929	9.446	1.973	2.789	2.424	17.89
1795000	1652708	2932	9.289	1.940	2.743	2.380	17.88
1800000	1656946	2935	9.135	1.908	2.698	2.336	17.87
1805000	1661182	2938	8.984	1.876	2.653	2.294	17.86
1810000	1665415	2941	8.836 - 9	1.845 - 8	2.609 -10	2.252 -15	17.85
1815000	1669647	2944	8.691	1.815	2.566	2.211	17.83
1820000	1673878	2948	8.548	1.785	2.524	2.171	17.82
1825000	1678106	2951	8.408	1.756	2.483	2.132	17.81
1830000	1682332	2954	8.270	1.727	2.442	2.093	17.80
1835000	1686557	2957	8.135	1.699	2.402	2.056	17.79
1840000	1690780	2960	8.003	1.671	2.363	2.019	17.78
1845000	1695000	2963	7.872	1.644	2.325	1.983	17.77
1850000	1699219	2967	7.745	1.618	2.287	1.947	17.76
1855000	1703437	2970	7.619	1.591	2.250	1.913	17.75

ALTITUDE		TEMP.	PRESSURE		DENSITY		MOL. WEIGHT	
Z, ft	H, ft'	T, °R	P, mb	P, lb/ft ²	P, in. Hg	ρ, lb/ft ³	M	
1860000	1707652	2973	7.496 - 9	1.566 - 8	2.214 -10	1.879 -15	6.044 -14	17.74
1865000	1711865	2976	7.375	1.540	2.178	1.845	5.937	17.73
1870000	1716077	2979	7.257	1.516	2.143	1.813	5.832	17.72
1875000	1720286	2983	7.140	1.491	2.109	1.780	5.729	17.71
1880000	1724494	2986	7.026	1.467	2.075	1.749	5.627	17.69
1885000	1728700	2989	6.914	1.444	2.042	1.718	5.528	17.68
1890000	1732904	2992	6.803	1.421	2.009	1.688	5.431	17.67
1895000	1737107	2995	6.695	1.398	1.977	1.658	5.336	17.66
1900000	1741307	2999	6.589	1.376	1.946	1.629	5.243	17.65
1905000	1745506	3002	6.484	1.354	1.915	1.601	5.151	17.64
1910000	1749702	3005	6.381 - 9	1.333 - 8	1.884 -10	1.573 -15	5.061 -14	17.63
1915000	1753897	3008	6.281	1.312	1.855	1.546	4.973	17.62
1920000	1758090	3012	6.182	1.291	1.825	1.519	4.887	17.62
1925000	1762282	3015	6.085	1.271	1.797	1.493	4.802	17.61
1930000	1766471	3018	5.989	1.251	1.769	1.467	4.719	17.60
1935000	1770658	3021	5.895	1.231	1.741	1.441	4.638	17.59
1940000	1774844	3025	5.803	1.212	1.714	1.417	4.558	17.58
1945000	1779028	3028	5.713	1.193	1.687	1.392	4.480	17.57
1950000	1783210	3031	5.624	1.175	1.661	1.368	4.403	17.56
1955000	1787390	3034	5.536	1.156	1.635	1.345	4.327	17.55
1960000	1791569	3038	5.450 - 9	1.138 - 8	1.610 -10	1.322 -15	4.254 -14	17.54
1965000	1795745	3041	5.366	1.121	1.585	1.299	4.181	17.53
1970000	1799920	3044	5.283	1.103	1.560	1.277	4.110	17.52
1975000	1804093	3047	5.202	1.086	1.536	1.256	4.040	17.51
1980000	1808264	3051	5.122	1.070	1.512	1.234	3.972	17.50
1985000	1812433	3054	5.043	1.053	1.489	1.214	3.905	17.49
1990000	1816600	3057	4.966	1.037	1.466	1.193	3.839	17.49
1995000	1820766	3060	4.890	1.021	1.444	1.173	3.774	17.48
2000000	1824929	3064	4.815	1.006	1.422	1.153	3.711	17.47
2005000	1829091	3067	4.742	9.904 - 9	1.400	1.134	3.648	17.46
2010000	1833251	3070	4.670 - 9	9.754 - 9	1.379 -10	1.115 -15	3.587 -14	17.45
2015000	1837410	3074	4.599	9.606	1.358	1.096	3.527	17.44
2020000	1841566	3077	4.530	9.460	1.338	1.078	3.469	17.43
2025000	1845721	3080	4.461	9.317	1.317	1.060	3.411	17.42
2030000	1849873	3083	4.394	9.177	1.298	1.043	3.354	17.42
2035000	1854024	3087	4.328	9.039	1.278	1.025	3.299	17.41
2040000	1858173	3090	4.263	8.903	1.259	1.008	3.244	17.40
2045000	1862321	3093	4.199	8.770	1.240	9.916 -16	3.190	17.39
2050000	1866466	3097	4.136	8.639	1.221	9.753	3.138	17.38
2055000	1870610	3100	4.074	8.510	1.203	9.593	3.086	17.37
2060000	1874752	3103	4.014 - 9	8.383 - 9	1.185 -10	9.435 -16	3.036 -14	17.37
2065000	1878892	3107	3.954	8.258	1.168	9.281	2.986	17.36
2070000	1883030	3110	3.895	8.136	1.150	9.129	2.937	17.35
2075000	1887167	3113	3.838	8.015	1.133	8.980	2.889	17.34
2080000	1891301	3117	3.781	7.897	1.117	8.834	2.842	17.33
2085000	1895434	3120	3.727	7.780	1.100	8.690	2.796	17.33
2090000	1899565	3123	3.670	7.666	1.084	8.549	2.751	17.32
2095000	1903695	3127	3.616	7.553	1.068	8.411	2.706	17.31
2100000	1907822	3130	3.563	7.442	1.052	8.275	2.662	17.30
2120000	1924314	3143	3.360	7.017	9.921 -11	7.755	2.495	17.27
2140000	1940777	3157	3.169 - 9	6.619 - 9	9.359 -11	7.272 -16	2.340 -14	17.24
2160000	1957212	3170	2.991	6.247	8.832	6.822	2.195	17.21
2180000	1973617	3184	2.824	5.898	8.339	6.403	2.060	17.19
2200000	1989995	3197	2.667	5.571	7.877	6.013	1.935	17.16
2220000	2006344	3211	2.521	5.264	7.443	5.649	1.818	17.13
2240000	2022664	3224	2.383	4.977	7.036	5.310	1.708	17.10
2260000	2038957	3238	2.254	4.707	6.655	4.993	1.607	17.08
2280000	2055221	3251	2.132	4.453	6.296	4.698	1.511	17.05
2300000	2071457	3265	2.018	4.215	5.960	4.421	1.423	17.03
2320000	2087665	3278	1.911	3.991	5.643	4.163	1.340	17.00

TABLE IIB
ATMOSPHERIC PROPERTIES AS A FUNCTION OF ALTITUDE
ENGLISH UNITS

Acceleration of Gravity, Specific Weight, Scale Height, Number Density
Particle Speed, Collision Frequency, and Mean Free Path

NOTE: A one- or two-digit number (preceded by a plus or minus sign) following the initial entry of each block indicates the power of 10 by which that entry and each succeeding entry of that block should be multiplied. A change of power occurring within a block is indicated by a similar notation.

ALTITUDE		ACC. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLLISION FREQ.	MEAN FREE PATH
Z, ft	H, ft	g, ft sec ⁻²	ω , lb/ft ⁻³	π , thsd ft	n , ft ⁻³	\bar{V} , ft sec ⁻¹	v , sec ⁻¹	L, ft
-16500	-16513	32.225	1.1893 - 1	30.765	1.1201 +24	1588.9	1.1339 +10	1.4013 - 7
-16000	-16012	32.223	1.1946	30.671	1.1252	1586.4	1.1373	1.3950
-15500	-15512	32.222	1.1789	30.578	1.1104	1584.0	1.1206	1.4135
-15000	-15011	32.220	1.1633	30.484	1.0958	1581.5	1.1041	1.4324
-14500	-14510	32.219	1.1479	30.390	1.0813	1579.0	1.0878	1.4516
-14000	-14009	32.217	1.1326	30.297	1.0670	1576.6	1.0717	1.4711
-13500	-13509	32.216	1.1175	30.203	1.0528	1574.1	1.0558	1.4909
-13000	-13008	32.214	1.1025	30.109	1.0387	1571.6	1.0401	1.5110
-12500	-12507	32.213	1.0877	30.016	1.0248	1569.1	1.0245	1.5315
-12000	-12007	32.211	1.0731	29.922	1.0111	1566.6	1.0092	1.5524
-11500	-11506	32.210	1.0586 - 1	29.828	9.9747 +23	1564.1	9.9402 + 9	1.5735 - 7
-11000	-11006	32.208	1.0443	29.734	9.8400	1561.6	9.7904	1.5951
-10500	-10505	32.206	1.0301	29.641	9.7057	1559.1	9.6423	1.6170
-10000	-10005	32.205	1.0160	29.547	9.5748	1556.6	9.4960	1.6393
- 9500	- 9504	32.203	1.0021	29.453	9.4443	1554.1	9.3515	1.6619
- 9000	- 9004	32.202	9.8837 - 2	29.360	9.3152	1551.6	9.2087	1.6850
- 8500	- 8503	32.200	9.7477	29.266	9.1874	1549.1	9.0677	1.7084
- 8000	- 8003	32.199	9.6131	29.172	9.0610	1546.6	8.9283	1.7322
- 7500	- 7503	32.197	9.4799	29.078	8.9359	1544.1	8.7907	1.7565
- 7000	- 7002	32.196	9.3482	28.985	8.8121	1541.5	8.6548	1.7811
- 6500	- 6502	32.194	9.2178 - 2	28.891	8.6897 +23	1539.0	8.5205 + 9	1.8062 - 7
- 6000	- 6002	32.193	9.0889	28.797	8.5686	1536.5	8.3879	1.8318
- 5500	- 5501	32.191	8.9614	28.703	8.4488	1533.9	8.2569	1.8577
- 5000	- 5001	32.189	8.8352	28.610	8.3302	1531.4	8.1276	1.8842
- 4500	- 4501	32.188	8.7105	28.516	8.2130	1528.8	7.9999	1.9111
- 4000	- 4001	32.186	8.5871	28.422	8.0970	1526.3	7.8737	1.9384
- 3500	- 3501	32.185	8.4650	28.328	7.9823	1523.7	7.7492	1.9663
- 3000	- 3000	32.183	8.3443	28.235	7.8689	1521.2	7.6262	1.9947
- 2500	- 2500	32.182	8.2249	28.141	7.7566	1518.6	7.5048	2.0235
- 2000	- 2000	32.180	8.1068	28.047	7.6457	1516.0	7.3849	2.0529
- 1500	- 1500	32.179	7.9901 - 2	27.953	7.5359 +23	1513.5	7.2665 + 9	2.0828 - 7
- 1000	- 1000	32.177	7.8746	27.860	7.4274	1510.9	7.1497	2.1132
- 500	- 500	32.176	7.7604	27.766	7.3200	1508.3	7.0343	2.1442
0	0	32.174	7.6475	27.672	7.2139	1505.7	6.9204	2.1758
500	500	32.173	7.5359	27.578	7.1089	1503.1	6.8080	2.2079
1000	1000	32.171	7.4255	27.484	7.0051	1500.5	6.6970	2.2406
1500	1500	32.169	7.3164	27.391	6.9025	1497.9	6.5875	2.2739
2000	2000	32.168	7.2085	27.297	6.8011	1495.3	6.4794	2.3078
2500	2500	32.166	7.1019	27.203	6.7008	1492.7	6.3727	2.3424
3000	3000	32.165	6.9964	27.109	6.6016	1490.1	6.2674	2.3776
3500	3499	32.163	6.8922 - 2	27.015	6.5036 +23	1487.5	6.1635 + 9	2.4134 - 7
4000	3999	32.162	6.7892	26.921	6.4067	1484.9	6.0610	2.4499
4500	4499	32.160	6.6874	26.828	6.3109	1482.2	5.9598	2.4871
5000	4999	32.159	6.5867	26.734	6.2162	1479.6	5.8599	2.5250
5500	5499	32.157	6.4872	26.640	6.1226	1477.0	5.7614	2.5636
6000	5998	32.156	6.3889	26.546	6.0301	1474.3	5.6642	2.6029
6500	6498	32.154	6.2917	26.452	5.9386	1471.7	5.5683	2.6430
7000	6998	32.152	6.1957	26.358	5.8483	1469.0	5.4737	2.6838
7500	7497	32.151	6.1008	26.264	5.7590	1466.4	5.3804	2.7254
8000	7997	32.149	6.0070	26.171	5.6707	1463.7	5.2884	2.7678
8500	8497	32.148	5.9143 - 2	26.077	5.5835 +23	1461.1	5.1976 + 9	2.8111 - 7
9000	8996	32.146	5.8228	25.983	5.4973	1458.4	5.1080	2.8551
9500	9496	32.145	5.7323	25.889	5.4122	1455.7	5.0197	2.9001
10000	9995	32.143	5.6429	25.795	5.3281	1453.1	4.9326	2.9458
10500	10495	32.142	5.5546	25.701	5.2449	1450.4	4.8466	2.9925
11000	10994	32.140	5.4674	25.607	5.1628	1447.7	4.7619	3.0401
11500	11494	32.139	5.3812	25.513	5.0817	1445.0	4.6784	3.0887
12000	11993	32.137	5.2961	25.419	5.0015	1442.3	4.5960	3.1382
12500	12493	32.136	5.2120	25.326	4.9223	1439.6	4.5148	3.1887
13000	12992	32.134	5.1289	25.232	4.8441	1436.9	4.4347	3.2401

ALTITUDE	ACC. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLLISION FREQ.	MEAN FREE PATH	
Z, ft	H, ft'	g, ft sec ⁻²	ω, lb/ft ⁻³	H _s , thsd ft	n, ft ⁻³	\bar{V} , ft sec ⁻¹	v , sec ⁻¹	L, ft
13500	13491	32.132	5.0469 - 2	25.138	4.7669 +23	1434.2	4.3557 + 9	3.2926 - 7
14000	13991	32.131	4.9659	25.044	4.6906	1431.5	4.2779	3.3462
14500	14490	32.129	4.8859	24.950	4.6152	1428.7	4.2011	3.4008
15000	14989	32.128	4.8068	24.856	4.5408	1426.0	4.1255	3.4566
15500	15488	32.126	4.7288	24.762	4.4673	1423.3	4.0510	3.5135
16000	15988	32.125	4.6517	24.668	4.3947	1420.6	3.9775	3.5715
16500	16487	32.123	4.5757	24.574	4.3230	1417.8	3.9050	3.6307
17000	16986	32.122	4.5005	24.480	4.2522	1415.1	3.8337	3.6911
17500	17485	32.120	4.4264	24.386	4.1824	1412.3	3.7633	3.7528
18000	17984	32.119	4.3531	24.292	4.1134	1409.6	3.6940	3.8158
18500	18484	32.117	4.2808 - 2	24.198	4.0452 +23	1406.8	3.6257 + 9	3.8800 - 7
19000	18983	32.116	4.2095	24.104	3.9780	1404.0	3.5584	3.9456
19500	19482	32.114	4.1390	24.010	3.9116	1401.3	3.4921	4.0126
20000	19981	32.112	4.0695	23.916	3.8461	1398.5	3.4268	4.0809
20500	20480	32.111	4.0008	23.822	3.7814	1395.7	3.3625	4.1508
21000	20979	32.109	3.9331	23.728	3.7175	1392.9	3.2991	4.2220
21500	21478	32.108	3.8662	23.634	3.6545	1390.1	3.2367	4.2949
22000	21977	32.106	3.8003	23.540	3.5923	1387.3	3.1752	4.3692
22500	22476	32.105	3.7351	23.446	3.5310	1384.5	3.1146	4.4452
23000	22975	32.103	3.6709	23.352	3.4704	1381.7	3.0550	4.5227
23500	23474	32.102	3.6075 - 2	23.258	3.4106 +23	1378.9	2.9962 + 9	4.6020 - 7
24000	23972	32.100	3.5450	23.164	3.3516	1376.0	2.9384	4.6830
24500	24471	32.099	3.4832	23.070	3.2935	1373.2	2.8815	4.7657
25000	24970	32.097	3.4224	22.976	3.2360	1370.4	2.8254	4.8503
25500	25469	32.096	3.3623	22.882	3.1794	1367.5	2.7702	4.9367
26000	25968	32.094	3.3031	22.788	3.1235	1364.7	2.7158	5.0250
26500	26466	32.092	3.2446	22.694	3.0684	1361.8	2.6623	5.1152
27000	26965	32.091	3.1870	22.600	3.0140	1359.0	2.6097	5.2075
27500	27464	32.089	3.1301	22.506	2.9604	1356.1	2.5578	5.3018
28000	27962	32.088	3.0740	22.412	2.9075	1353.3	2.5068	5.3983
28500	28461	32.086	3.0188 - 2	22.318	2.8554 +23	1350.4	2.4566 + 9	5.4969 - 7
29000	28960	32.085	2.9642	22.224	2.8039	1347.5	2.4072	5.5977
29500	29458	32.083	2.9105	22.130	2.7532	1344.6	2.3586	5.7009
30000	29957	32.082	2.8575	22.036	2.7032	1341.7	2.3108	5.8064
30500	30455	32.080	2.8052	21.942	2.6539	1338.8	2.2637	5.9143
31000	30954	32.079	2.7537	21.848	2.6052	1335.9	2.2174	6.0246
31500	31452	32.077	2.7029	21.754	2.5573	1333.0	2.1719	6.1376
32000	31951	32.076	2.6528	21.659	2.5100	1330.1	2.1271	6.2531
32500	32449	32.074	2.6034	21.565	2.4635	1327.2	2.0830	6.3714
33000	32948	32.072	2.5543	21.471	2.4175	1324.2	2.0397	6.4924
33500	33446	32.071	2.5068 - 2	21.377	2.3723 +23	1321.3	1.9970 + 9	6.6163 - 7
34000	33945	32.069	2.4596	21.283	2.3277	1318.4	1.9551	6.7430
34500	34443	32.068	2.4130	21.189	2.2837	1315.4	1.9139	6.8728
35000	34941	32.066	2.3671	21.095	2.2404	1312.5	1.8734	7.0057
35500	35440	32.065	2.3219	21.001	2.1977	1309.5	1.8336	7.1418
36000	35938	32.063	2.2774	20.907	2.1557	1306.5	1.7944	7.2811
36500	36436	32.062	2.2335	20.813	2.1146	1303.6	1.7552	7.4233
37000	36934	32.060	2.1897	20.719	2.0737	1300.6	1.7167	7.5677
37500	37433	32.059	2.1461	20.625	2.0332	1297.6	1.6782	7.7136
38000	37931	32.057	2.1028	20.531	1.9931	1294.6	1.6396	7.8609
38500	38429	32.056	2.0607 - 2	20.437	1.9534 +23	1291.6	1.5990 + 9	8.0098 - 7
39000	38927	32.054	1.9748	20.343	1.9142	1288.6	1.5593	8.1604
39500	39425	32.053	1.9280	20.249	1.8755	1285.6	1.5195	8.3126
40000	39923	32.051	1.8823	20.155	1.8373	1282.6	1.4806	8.4662
40500	40422	32.049	1.8377	20.061	1.7996	1279.6	1.4425	8.6213
41000	40920	32.048	1.7941	19.967	1.7623	1276.6	1.4051	8.7779
41500	41418	32.046	1.7516	19.873	1.7255	1273.6	1.3682	8.9359
42000	41916	32.045	1.7101	19.779	1.6892	1270.6	1.3318	9.0954
42500	42414	32.043	1.6695	19.685	1.6534	1267.6	1.2958	9.2564
43000	42912	32.042	1.6300	19.591	1.6181	1264.6	1.2602	9.4189

ALTITUDE		ACC. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLLISION FREQ.	MEAN FREE PATH
Z, ft	H, ft'	g, ft sec ⁻²	w, lb/ft ⁻³	H _s , tnsd ft	n, ft ⁻³	V, ft sec ⁻¹	v, sec ⁻¹	L, ft
43500	43409	32.040	1.5914 - 2	20.893	1.5074 +23	1305.6	1.2539 + 9	1.0412 - 6
44000	43907	32.039	1.5537	20.894	1.4717	1305.6	1.2242	1.0665
44500	44405	32.037	1.5168	20.895	1.4369	1305.6	1.1953	1.0923
45000	44903	32.036	1.4809	20.896	1.4030	1305.6	1.1670	1.1187
45500	45401	32.034	1.4458	20.897	1.3698	1305.6	1.1394	1.1458
46000	45899	32.033	1.4116	20.898	1.3374	1305.6	1.1125	1.1736
46500	46397	32.031	1.3781	20.899	1.3053	1305.6	1.0862	1.2020
47000	46894	32.030	1.3455	20.900	1.2749	1305.6	1.0605	1.2311
47500	47392	32.028	1.3136	20.901	1.2448	1305.6	1.0355	1.2509
48000	47890	32.026	1.2825	20.902	1.2154	1305.6	1.0110	1.2914
48500	48387	32.025	1.2521 - 2	20.903	1.1866 +23	1305.6	9.8708 + 8	1.3227 - 6
49000	48885	32.023	1.2223	20.904	1.1586	1305.6	9.6375	1.3547
49500	49383	32.022	1.1935	20.905	1.1312	1305.6	9.4037	1.3875
50000	49880	32.020	1.1653	20.906	1.1045	1305.6	9.1873	1.4211
50500	50378	32.019	1.1377	20.907	1.0784	1305.6	8.9702	1.4555
51000	50876	32.017	1.1107	20.908	1.0529	1305.6	8.7582	1.4907
51500	51373	32.016	1.0844	20.909	1.0280	1305.6	8.5513	1.5268
52000	51871	32.014	1.0583	20.910	1.0037	1305.6	8.3492	1.5638
52500	52368	32.013	1.0337	20.911	9.8000 +22	1305.6	8.1519	1.6016
53000	52866	32.011	1.0092	20.912	9.5634	1305.6	7.9593	1.6404
53500	53364	32.010	9.8533 - 3	20.913	9.3424 +22	1305.6	7.7713 + 8	1.6801 - 6
54000	53861	32.008	9.6201	20.914	9.1215	1305.6	7.5377	1.7207
54500	54358	32.007	9.3924	20.915	8.9062	1305.6	7.4034	1.7623
55000	54855	32.005	9.1701	20.916	8.6958	1305.6	7.2334	1.8050
55500	55353	32.003	8.9530	20.917	8.4904	1305.6	7.0626	1.8486
56000	55850	32.002	8.7411	20.918	8.2898	1305.6	6.8957	1.8934
56500	56347	32.000	8.5343	20.919	8.0940	1305.6	6.7329	1.9392
57000	56845	31.999	8.3323	20.920	7.9029	1305.6	6.5739	1.9861
57500	57342	31.997	8.1351	20.921	7.7162	1305.6	6.4186	2.0341
58000	57839	31.996	7.9426	20.922	7.5340	1305.6	6.2670	2.0833
58500	58336	31.994	7.7547 - 3	20.923	7.3561 +22	1305.6	6.1190 + 8	2.1337 - 6
59000	58834	31.993	7.5712	20.924	7.1824	1305.6	5.9745	2.1853
59500	59331	31.991	7.3921	20.925	7.0123	1305.6	5.8335	2.2381
60000	59828	31.990	7.2172	20.926	6.8472	1305.6	5.6957	2.2923
60500	60325	31.988	7.0465	20.927	6.6855	1305.6	5.5612	2.3477
61000	60822	31.987	6.8798	20.928	6.5277	1305.6	5.4300	2.4045
61500	61319	31.985	6.7171	20.929	6.3736	1305.6	5.3018	2.4625
62000	61816	31.984	6.5592	20.930	6.2231	1305.6	5.1766	2.5221
62500	62313	31.982	6.4051	20.931	6.0762	1305.6	5.0544	2.5831
63000	62810	31.981	6.2516	20.932	5.9328	1305.6	4.9351	2.6456
63500	63307	31.979	6.1038 - 3	20.933	5.7928 +22	1305.6	4.8186 + 8	2.7095 - 6
64000	63804	31.977	5.9594	20.934	5.6560	1305.6	4.7049	2.7750
64500	64301	31.976	5.8185	20.935	5.5225	1305.6	4.5938	2.8421
65000	64798	31.974	5.6809	20.936	5.3922	1305.6	4.4854	2.9108
65500	65295	31.973	5.5466	20.937	5.2650	1305.6	4.3796	2.9812
66000	65792	31.971	5.4154	20.938	5.1407	1305.6	4.2762	3.0532
66500	66289	31.970	5.2874	20.939	5.0194	1305.6	4.1753	3.1270
67000	66785	31.968	5.1624	20.940	4.9010	1305.6	4.0768	3.2026
67500	67282	31.967	5.0403	20.941	4.7853	1305.6	3.9806	3.2799
68000	67779	31.965	4.9212	20.942	4.6724	1305.6	3.8867	3.3592
68500	68276	31.964	4.8048 - 3	20.943	4.5622 +22	1305.6	3.7950 + 8	3.4404 - 6
69000	68772	31.962	4.6913	20.944	4.4546	1305.6	3.7055	3.5235
69500	69269	31.961	4.5804	20.945	4.3495	1305.6	3.6181	3.6086
70000	69766	31.959	4.4721	20.946	4.2469	1305.6	3.5327	3.6958
70500	70262	31.958	4.3664	20.947	4.1467	1305.6	3.4494	3.7851
71000	70759	31.956	4.2632	20.948	4.0489	1305.6	3.3680	3.8765
71500	71256	31.955	4.1625	20.949	3.9534	1305.6	3.2886	3.9702
72000	71752	31.953	4.0641	20.950	3.8602	1305.6	3.2110	4.0661
72500	72249	31.952	3.9681	20.951	3.7691	1305.6	3.1353	4.1643
73000	72745	31.950	3.8743	20.952	3.6802	1305.6	3.0614	4.2648

ALTITUDE	ACC. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLLISION FREQ.	MEAN FREE PATH	
Z, ft	H, ft'	g, ft sec ⁻²	w, lb/ft ⁻³	H _s , thsd ft	n, ft ⁻³	V, ft sec ⁻¹	v, sec ⁻¹	L, ft
73500	73242	31.948	3.7828 - 3	20.953	3.5935 +22	1305.6	2.9892 + 8	4.3678 - 6
74000	73738	31.947	3.6934	20.954	3.5087	1305.6	2.9187	4.4733
74500	74235	31.945	3.6061	20.955	3.4260	1305.6	2.8499	4.5813
75000	74731	31.944	3.5209	20.956	3.3452	1305.6	2.7827	4.6920
75500	75228	31.942	3.4378	20.957	3.2663	1305.6	2.7171	4.8053
76000	75724	31.941	3.3566	20.958	3.1893	1305.6	2.6530	4.9213
76500	76220	31.939	3.2773	20.959	3.1142	1305.6	2.5905	5.0401
77000	76717	31.938	3.1999	20.960	3.0407	1305.6	2.5294	5.1618
77500	77213	31.936	3.1243	20.961	2.9691	1305.6	2.4698	5.2864
78000	77709	31.935	3.0505	20.962	2.8991	1305.6	2.4116	5.4140
78500	78206	31.933	2.9785 - 3	20.963	2.8307 +22	1305.6	2.3547 + 8	5.5447 - 6
79000	78702	31.932	2.9081	20.964	2.7640	1305.6	2.2992	5.6785
79500	79198	31.930	2.8394	20.965	2.6989	1305.6	2.2450	5.8156
80000	79694	31.929	2.7724	20.966	2.6353	1305.6	2.1921	5.9560
80500	80190	31.927	2.7069	20.967	2.5732	1305.6	2.1405	6.0997
81000	80687	31.926	2.6430	20.968	2.5125	1305.6	2.0900	6.2469
81500	81183	31.924	2.5806	20.969	2.4533	1305.6	2.0408	6.3977
82000	81679	31.923	2.5197	20.970	2.3955	1305.6	1.9927	6.5520
82500	82175	31.921	2.4586	20.984	2.3376	1306.0	1.9451	6.7145
83000	82671	31.919	2.3957	21.029	2.2778	1307.4	1.8974	6.8906
83500	83167	31.918	2.3344 - 3	21.074	2.2197 +22	1308.8	1.8509 + 8	7.0710 - 6
84000	83663	31.916	2.2749	21.119	2.1632	1310.1	1.8057	7.2556
84500	84159	31.915	2.2170	21.164	2.1083	1311.5	1.7616	7.4447
85000	84655	31.913	2.1607	21.209	2.0549	1312.9	1.7188	7.6383
85500	85151	31.912	2.1060	21.254	2.0029	1314.2	1.6770	7.8365
86000	85647	31.910	2.0527	21.299	1.9523	1315.6	1.6364	8.0394
86500	86143	31.909	2.0009	21.344	1.9032	1316.9	1.5968	8.2472
87000	86639	31.907	1.9505	21.389	1.8553	1318.3	1.5583	8.4598
87500	87134	31.906	1.9015	21.434	1.8088	1319.6	1.5208	8.6774
88000	87630	31.904	1.8538	21.478	1.7635	1321.0	1.4842	8.9002
88500	88126	31.903	1.8074 - 3	21.523	1.7195 +22	1322.3	1.4486 + 8	9.1283 - 6
89000	88622	31.901	1.7623	21.568	1.6766	1323.7	1.4139	9.3616
89500	89118	31.900	1.7184	21.613	1.6349	1325.0	1.3802	9.6004
90000	89613	31.898	1.6756	21.658	1.5943	1326.4	1.3473	9.8449
90500	90109	31.897	1.6341	21.703	1.5548	1327.7	1.3152	1.0095 - 5
91000	90605	31.895	1.5936	21.748	1.5164	1329.1	1.2840	1.0351
91500	91100	31.894	1.5542	21.793	1.4789	1330.4	1.2536	1.0613
92000	91596	31.892	1.5158	21.838	1.4425	1331.7	1.2239	1.0881
92500	92092	31.891	1.4785	21.883	1.4071	1333.1	1.1951	1.1155
93000	92587	31.889	1.4422	21.928	1.3726	1334.4	1.1669	1.1435
93500	93083	31.887	1.4068 - 3	21.973	1.3390 +22	1335.7	1.1395 + 8	1.1722 - 5
94000	93578	31.886	1.3724	22.018	1.3063	1337.1	1.1128	1.2016
94500	94074	31.884	1.3389	22.063	1.2744	1338.4	1.0867	1.2316
95000	94569	31.883	1.3063	22.108	1.2434	1339.7	1.0614	1.2623
95500	95065	31.881	1.2745	22.153	1.2132	1341.1	1.0366	1.2937
96000	95560	31.880	1.2435	22.198	1.1838	1342.4	1.0125	1.3258
96500	96056	31.878	1.2134	22.243	1.1552	1343.7	9.8900 + 7	1.3587
97000	96551	31.877	1.1841	22.288	1.1273	1345.1	9.6609	1.3923
97500	97046	31.875	1.1555	22.333	1.1002	1346.4	9.4375	1.4266
98000	97542	31.874	1.1277	22.378	1.0737	1347.7	9.2197	1.4618
98500	98037	31.872	1.1006 - 3	22.422	1.0480 +22	1349.0	9.0073 + 7	1.4977 - 5
99000	98532	31.871	1.0742	22.467	1.0229	1350.3	8.8003	1.5344
99500	99028	31.869	1.0484	22.512	9.9846 +21	1351.7	8.5984	1.5720
100000	99523	31.868	1.0234	22.557	9.7464	1353.0	8.4015	1.6104
100500	100018	31.866	9.9899 - 4	22.602	9.5145	1354.3	8.2095	1.6497
101000	100513	31.865	9.7522	22.647	9.2885	1355.6	8.0223	1.6898
101500	101008	31.863	9.5205	22.692	9.0683	1356.9	7.8397	1.7308
102000	101504	31.862	9.2948	22.737	8.8537	1358.2	7.6616	1.7728
102500	101999	31.860	9.0749	22.782	8.6446	1359.5	7.4879	1.8156
103000	102494	31.859	8.8606	22.827	8.4409	1360.9	7.3185	1.8595

ALTITUDE	ACC. OF	SPECIFIC	SCALE	NUMBER	PART.	COLLISION	MEAN
Z, ft	H, ft	g, ft sec ⁻²	W, lb ft ⁻³	H _g , in. ft	n, ft ⁻³	V, ft sec ⁻¹	FREQ. FREE PATH
Z, ft	H, ft	g, ft sec ⁻²	W, lb ft ⁻³	H _g , in. ft	n, ft ⁻³	V, ft sec ⁻¹	v, sec ⁻¹ L, ft
103500	102989	31.857	8.6517 - 4	22.872	8.2424 +21	1362.2	7.1532 + 7 1.9043 - 5
104000	103484	31.856	8.4482	22.917	8.0489	1365.5	6.9920 1.9500
104500	103979	31.854	8.2499	22.962	7.8603	1364.8	6.8347 1.9968
105000	104474	31.853	8.0566	23.007	7.6764	1366.1	6.6812 2.0447
106000	105464	31.849	7.6845	23.097	7.3226	1368.7	6.3854 2.1434
107000	106454	31.846	7.3309	23.187	6.9864	1371.3	6.1038 2.2466
108000	107444	31.843	6.9949	23.277	6.6668	1373.9	5.8356 2.3543
109000	108433	31.840	6.6755	23.367	6.3630	1376.5	5.5801 2.4667
110000	109423	31.837	6.3718	23.457	6.0741	1379.0	5.3368 2.5840
111000	110412	31.834	6.0831	23.548	5.7994	1381.6	5.1050 2.7064
112000	111402	31.831	5.8084 - 4	23.638	5.5380 +21	1384.2	4.8840 + 7 2.8342 - 5
113000	112391	31.828	5.5471	23.728	5.2894	1386.8	4.6734 2.9674
114000	113380	31.825	5.2985	23.818	5.0528	1389.3	4.4726 3.1063
115000	114369	31.822	5.0619	23.908	4.8277	1391.9	4.2812 3.2512
116000	115358	31.819	4.8367	23.998	4.6133	1394.4	4.0986 3.4022
117000	116347	31.816	4.6223	24.088	4.4092	1397.0	3.9245 3.5597
118000	117336	31.813	4.4181	24.178	4.2149	1399.5	3.7583 3.7238
119000	118325	31.810	4.2237	24.268	4.0298	1402.1	3.5998 3.8949
120000	119313	31.807	4.0385	24.358	3.8535	1404.6	3.4485 4.0731
121000	120302	31.804	3.8621	24.449	3.6855	1407.1	3.3041 4.2588
122000	121290	31.801	3.6940 - 4	24.539	3.5254 +21	1409.7	3.1662 + 7 4.4522 - 5
123000	122279	31.798	3.5337	24.629	3.3728	1412.2	3.0346 4.6536
124000	123267	31.795	3.3810	24.719	3.2273	1414.7	2.9089 4.8634
125000	124255	31.792	3.2354	24.809	3.0886	1417.2	2.7888 5.0818
126000	125243	31.789	3.0966	24.899	2.9564	1419.7	2.6741 5.3091
127000	126231	31.786	2.9641	24.990	2.8302	1422.2	2.5645 5.5458
128000	127219	31.783	2.8378	25.080	2.7099	1424.7	2.4598 5.7920
129000	128207	31.780	2.7173	25.170	2.5950	1427.2	2.3597 6.0483
130000	129195	31.777	2.6023	25.260	2.4855	1429.7	2.2640 6.3150
131000	130182	31.774	2.4926	25.350	2.3809	1432.2	2.1725 6.5924
132000	131170	31.771	2.3879 - 4	25.441	2.2811 +21	1434.7	2.0850 + 7 6.8809 - 5
133000	132157	31.768	2.2879	25.531	2.1857	1437.1	2.0013 7.1809
134000	133145	31.765	2.1924	25.621	2.0947	1439.6	1.9213 7.4929
135000	134132	31.762	2.1012	25.711	2.0078	1442.1	1.8447 7.8173
136000	135119	31.758	2.0141	25.802	1.9248	1444.5	1.7714 8.1546
137000	136106	31.755	1.9309	25.892	1.8454	1447.0	1.7013 8.5051
138000	137093	31.752	1.8514	25.982	1.7696	1449.4	1.6342 8.8694
139000	138080	31.749	1.7755	26.072	1.6972	1451.9	1.5699 9.2479
140000	139066	31.746	1.7029	26.163	1.6280	1454.3	1.5084 9.6413
141000	140053	31.743	1.6335	26.253	1.5618	1456.8	1.4495 1.0050 - 4
142000	141040	31.740	1.5672 - 4	26.343	1.4985 +21	1459.2	1.3931 + 7 1.0474 - 4
143000	142026	31.737	1.5037	26.434	1.4380	1461.6	1.3391 1.0915
144000	143013	31.734	1.4431	26.524	1.3801	1464.0	1.2873 1.1373
145000	143999	31.731	1.3850	26.614	1.3247	1466.5	1.2377 1.1848
146000	144985	31.728	1.3295	26.705	1.2718	1468.9	1.1902 1.2342
147000	145971	31.725	1.2764	26.795	1.2211	1471.3	1.1446 1.2854
148000	146957	31.722	1.2256	26.885	1.1726	1473.7	1.1010 1.3385
149000	147943	31.719	1.1770	26.976	1.1262	1476.1	1.0591 1.3937
150000	148929	31.716	1.1304	27.066	1.0817	1478.5	1.0190 1.4510
151000	149915	31.713	1.0859	27.157	1.0392	1480.9	9.8049 + 6 1.5104
152000	150900	31.710	1.0432 - 4	27.247	9.9845 +20	1483.3	9.4357 + 6 1.5720 - 4
153000	151886	31.707	1.0023	27.337	9.5944	1485.7	9.0816 1.6359
154000	152871	31.704	9.6322 - 5	27.428	9.2207	1488.1	8.7419 1.7022
155000	153856	31.701	9.2574	27.518	8.8627	1490.4	8.4160 1.7710
156000	154842	31.698	8.9166	27.551	8.5372	1491.3	8.1114 1.8385
157000	155827	31.695	8.5979	27.554	8.2330	1491.3	7.8223 1.9064
158000	156812	31.692	8.2907	27.557	7.9395	1491.3	7.5435 1.9769
159000	157797	31.689	7.9945	27.559	7.6566	1491.3	7.2747 2.0500
160000	158782	31.686	7.7089	27.562	7.3838	1491.3	7.0155 2.1257
161000	159767	31.683	7.4335	27.565	7.1207	1491.3	6.7655 2.2042

ALTITUDE	ACC. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLLISION FREQ.	MEAN FREE PATH	
Z, ft	H, ft'	g, ft sec ⁻²	ω, lb. ft ⁻³	H _s , thsd ft	n, ft ⁻³	V, ft sec ⁻¹	v, sec ⁻¹	L, ft
162000	160751	31.680	7.1680 - 5	27.567	6.8670 +20	1491.3	6.5245 + 6	2.2857 - 4
163000	161736	31.677	6.9120	27.570	6.6224	1491.3	6.2920	2.3701
164000	162720	31.674	6.6652	27.572	6.3865	1491.3	6.0679	2.4576
165000	163705	31.671	6.4271	27.575	6.1590	1491.3	5.8518	2.5484
166000	164689	31.668	6.1977	27.578	5.9397	1491.3	5.6434	2.6425
167000	165673	31.665	5.9764	27.580	5.7282	1491.3	5.4424	2.7401
168000	166657	31.662	5.7631	27.583	5.5242	1491.3	5.2487	2.8413
169000	167641	31.659	5.5573	27.586	5.3275	1491.3	5.0618	2.9461
170000	168625	31.656	5.3590	27.588	5.1379	1491.3	4.8816	3.0549
171000	169609	31.653	5.1677	27.591	4.9550	1491.3	4.7078	3.1677
172000	170593	31.650	4.9833 - 5	27.593	4.7786 +20	1491.3	4.5403 + 6	3.2846 - 4
173000	171577	31.647	4.8055	27.596	4.6085	1491.3	4.3787	3.4058
174000	172560	31.644	4.6341	27.599	4.4445	1491.3	4.2228	3.5315
175000	173544	31.641	4.4687	27.601	4.2864	1491.3	4.0726	3.6618
176000	174527	31.638	4.3226	27.618	4.1466	1488.9	3.9337	3.7851
177000	175510	31.635	4.1877	27.639	4.0175	1485.4	3.8021	3.9068
178000	176494	31.632	4.0563	27.660	3.8919	1481.8	3.6743	4.0329
179000	177477	31.629	3.9285	27.130	3.7696	1478.2	3.5502	4.1638
180000	178460	31.626	3.8041	27.001	3.6506	1474.6	3.4298	4.2995
181000	179443	31.623	3.6831	26.872	3.5348	1471.0	3.3129	4.4403
182000	180425	31.620	3.5653 - 5	26.743	3.4221 +20	1467.4	3.1994 + 6	4.5865 - 4
183000	181408	31.617	3.4508	26.614	3.3125	1463.8	3.0893	4.7383
184000	182391	31.614	3.3395	26.485	3.2060	1460.2	2.9825	4.8958
185000	183373	31.611	3.2312	26.355	3.1023	1456.5	2.8789	5.0593
186000	184356	31.608	3.1259	26.226	3.0015	1452.9	2.7784	5.2292
187000	185338	31.605	3.0236	26.097	2.9035	1449.2	2.6810	5.4057
188000	186320	31.602	2.9241	25.968	2.8083	1445.6	2.5865	5.5890
189000	187303	31.599	2.8275	25.838	2.7157	1441.9	2.4948	5.7796
190000	188285	31.596	2.7336	25.709	2.6258	1438.2	2.4060	5.9776
191000	189267	31.593	2.6423	25.580	2.5383	1434.5	2.3200	6.1834
192000	190248	31.590	2.5537 - 5	25.451	2.4534 +20	1430.8	2.2366 + 6	6.3975 - 4
193000	191230	31.587	2.4676	25.321	2.3709	1427.1	2.1558	6.6201
194000	192212	31.584	2.3839	25.192	2.2908	1423.4	2.0775	6.8516
195000	193194	31.581	2.3027	25.063	2.2130	1419.7	2.0017	7.0925
196000	194175	31.578	2.2239	24.933	2.1374	1416.0	1.9283	7.3432
197000	195157	31.575	2.1474	24.804	2.0641	1412.2	1.8572	7.6041
198000	196138	31.572	2.0732	24.675	1.9929	1408.5	1.7883	7.8758
199000	197119	31.569	2.0011	24.545	1.9238	1404.7	1.7217	8.1586
200000	198100	31.566	1.9312	24.416	1.8568	1400.9	1.6573	8.4532
201000	199081	31.563	1.8634	24.286	1.7917	1397.1	1.5949	8.7600
202000	200062	31.560	1.7976 - 5	24.157	1.7286 +20	1393.3	1.5346 + 6	9.0797 - 4
203000	201043	31.557	1.7338	24.028	1.6675	1389.5	1.4762	9.4129
204000	202024	31.554	1.6719	23.898	1.6081	1385.7	1.4198	9.7603
205000	203004	31.551	1.6120	23.769	1.5506	1381.9	1.3652	1.0122 - 3
206000	203985	31.548	1.5538	23.639	1.4948	1378.1	1.3124	1.0500
207000	204966	31.545	1.4975	23.510	1.4408	1374.2	1.2615	1.0894
208000	205946	31.542	1.4429	23.380	1.3884	1370.4	1.2122	1.1305
209000	206926	31.539	1.3900	23.251	1.3376	1366.5	1.1646	1.1734
210000	207906	31.536	1.3388	23.121	1.2885	1362.6	1.1186	1.2182
211000	208887	31.533	1.2892	22.992	1.2408	1358.7	1.0742	1.2649
212000	209867	31.530	1.2412 - 5	22.862	1.1947 +20	1354.8	1.0313 + 6	1.3137 - 3
213000	210847	31.527	1.1947	22.733	1.1501	1350.9	9.8988 + 5	1.3647
214000	211826	31.524	1.1497	22.603	1.1069	1347.0	9.4992	1.4180
215000	212806	31.521	1.1061	22.474	1.0650	1343.1	9.1135	1.4737
216000	213786	31.518	1.0640	22.344	1.0245	1339.1	8.7414	1.5320
217000	214765	31.515	1.0232	22.214	9.8539 +19	1335.2	8.3825	1.5928
218000	215745	31.512	9.8379 - 6	22.085	9.4751	1331.2	8.0363	1.6565
219000	216724	31.509	9.4566	21.955	9.1087	1327.3	7.7025	1.7231
220000	217703	31.506	9.0880	21.826	8.7545	1323.3	7.3807	1.7929
221000	218683	31.503	8.7317	21.696	8.4120	1319.3	7.0706	1.8659

ALTITUDE		ACC. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLLISION FREQ.	MEAN FREE PATH
Z, ft	H, ft'	g, ft sec ⁻²	ω , lb ft ⁻³	H_s , thsd ft	n, ft ⁻³	\bar{V} , ft sec ⁻¹	ν , sec ⁻¹	L, ft
222000	219662	31.500	8.3873 - 6	21.566	8.0811 +19	1315.3	6.7717 + 5	1.9423 - 3
223000	220641	31.497	8.0546	21.437	7.7612	1311.2	6.4838	2.0223
224000	221620	31.494	7.7332	21.307	7.4522	1307.2	6.2065	2.1062
225000	222598	31.491	7.4228	21.177	7.1538	1303.2	5.9395	2.1940
226000	223577	31.488	7.1230	21.047	6.8655	1299.1	5.6824	2.2862
227000	224556	31.485	6.8336	20.918	6.5872	1295.0	5.4350	2.3827
228000	225534	31.482	6.5543	20.788	6.3185	1290.9	5.1969	2.4841
229000	226513	31.479	6.2847	20.658	6.0593	1286.8	4.9678	2.5904
230000	227491	31.476	6.0247	20.528	5.8091	1282.7	4.7475	2.7019
231000	228469	31.473	5.7739	20.399	5.5678	1278.6	4.5357	2.8190
232000	229447	31.470	5.5320 - 6	20.269	5.3350 +19	1274.5	4.3320 + 5	2.9420 - 3
233000	230426	31.467	5.2988	20.139	5.1106	1270.3	4.1363	3.0712
234000	231404	31.464	5.0740	20.009	4.8943	1266.2	3.9482	3.2069
235000	232381	31.461	4.8574	19.879	4.6858	1262.0	3.7676	3.3496
236000	233359	31.458	4.6487	19.750	4.4849	1257.8	3.5941	3.4997
237000	234337	31.455	4.4476	19.620	4.2913	1253.6	3.4275	3.6575
238000	235315	31.452	4.2541	19.490	4.1050	1249.4	3.2676	3.8236
239000	236292	31.449	4.0677	19.360	3.9255	1245.2	3.1142	3.9984
240000	237269	31.446	3.8884	19.230	3.7528	1240.9	2.9670	4.1824
241000	238247	31.443	3.7158	19.100	3.5865	1236.7	2.8259	4.3763
242000	239224	31.440	3.5497 - 6	18.970	3.4266 +19	1232.4	2.6905 + 5	4.5805 - 3
243000	240201	31.437	3.3901	18.840	3.2728	1228.1	2.5608	4.7958
244000	241178	31.434	3.2366	18.711	3.1249	1223.8	2.4365	5.0228
245000	242155	31.431	3.0890	18.581	2.9827	1219.5	2.3175	5.2622
246000	243132	31.43	2.947	18.45	2.846	1215.	2.203	5.515
247000	244109	31.43	2.811	18.32	2.715	1211.	2.094	5.782
248000	245085	31.42	2.680	18.19	2.589	1206.	1.990	6.063
249000	246062	31.42	2.555	18.06	2.468	1202.	1.890	6.361
250000	247039	31.42	2.434	17.93	2.351	1198.	1.794	6.675
251000	248015	31.41	2.318	17.80	2.240	1193.	1.703	7.008
252000	248991	31.41	2.207 - 6	17.67	2.133 +19	1189.	1.615 + 5	7.359 - 3
253000	249967	31.41	2.101	17.54	2.030	1184.	1.532	7.731
254000	250944	31.40	1.999	17.41	1.932	1180.	1.452	8.125
255000	251920	31.40	1.901	17.28	1.837	1175.	1.376	8.542
256000	252896	31.40	1.807	17.15	1.747	1171.	1.303	8.984
257000	253871	31.40	1.718	17.02	1.660	1167.	1.234	9.452
258000	254847	31.39	1.632	16.89	1.578	1162.	1.168	9.949
259000	255823	31.39	1.550	16.76	1.498	1157.	1.105	1.048 - 2
260000	256798	31.39	1.471	16.63	1.422	1153.	1.045	1.104
261000	257774	31.38	1.396	16.50	1.350	1148.	9.874 + 4	1.163
262000	258749	31.38	1.324 - 6	16.37	1.280 +19	1144.	9.329 + 4	1.226 - 2
263000	259725	31.38	1.249	16.31	1.209	1142.	8.790	1.299
264000	260700	31.37	1.175	16.31	1.137	1142.	8.268	1.381
265000	261675	31.37	1.105	16.32	1.069	1142.	7.776	1.468
266000	262650	31.37	1.039	16.32	1.006	1142.	7.314	1.561
267000	263625	31.37	9.774 - 7	16.32	9.457 +18	1142.	6.879	1.660
268000	264600	31.36	9.192	16.32	8.895	1142.	6.470	1.764
269000	265574	31.36	8.645	16.32	8.367	1142.	6.086	1.876
270000	266549	31.36	8.131	16.32	7.869	1142.	5.724	1.995
271000	267524	31.35	7.647	16.32	7.402	1142.	5.384	2.121
272000	268498	31.35	7.192 - 7	16.33	6.962 +18	1142.	5.064 + 4	2.254 - 2
273000	269472	31.35	6.764	16.33	6.548	1142.	4.763	2.397
274000	270447	31.34	6.361	16.33	6.159	1142.	4.480	2.548
275000	271421	31.34	5.983	16.33	5.794	1142.	4.214	2.709
276000	272395	31.34	5.627	16.33	5.449	1142.	3.964	2.880
277000	273369	31.34	5.292	16.33	5.126	1142.	3.728	3.062
278000	274343	31.33	4.978	16.34	4.821	1142.	3.507	3.255
279000	275317	31.33	4.682	16.34	4.535	1142.	3.299	3.461
280000	276290	31.33	4.403	16.34	4.266	1142.	3.103	3.679
281000	277264	31.32	4.141	16.34	4.013	1142.	2.919	3.912

ALTITUDE		ACC. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED.	COLLISION FREQ.	MEAN FREE PATH
Z, ft	H, ft'	g, ft sec ⁻²	α , lb/ft ⁻³	H _S , thsd ft	n, ft ⁻³	\bar{V} , ft sec ⁻¹	v, sec ⁻¹	L, ft
282000	278238	31.32	3.895 - 7	16.34	3.774 +18	1142.	2.745 + 4	4.158 - 2
283000	279211	31.32	3.664	16.34	3.550	1142.	2.582	4.421
284000	280184	31.32	3.446	16.34	3.340	1142.	2.429	4.700
285000	281158	31.31	3.241	16.35	3.141	1142.	2.285	4.996
286000	282131	31.31	3.048	16.35	2.955	1142.	2.149	5.311
287000	283104	31.31	2.867	16.35	2.780	1142.	2.022	5.647
288000	284077	31.30	2.697	16.35	2.615	1142.	1.902	6.003
289000	285050	31.30	2.537	16.35	2.460	1142.	1.789	6.381
290000	286023	31.30	2.386	16.35	2.314	1142.	1.683	6.784
291000	286995	31.29	2.244	16.36	2.177	1142.	1.583	7.211
292000	287968	31.29	2.111 - 7	16.36	2.047 +18	1142.	1.489 + 4	7.666 - 2
293000	288940	31.29	1.986	16.36	1.926	1142.	1.401	8.149
294000	289913	31.29	1.868	16.36	1.812	1142.	1.318	8.663
295000	290885	31.28	1.757	16.36	1.704	1142.	1.240	9.209
296000	291857	31.28	1.652	16.36	1.603	1142.	1.166	9.789
297000	292830	31.28	1.554	16.36	1.508	1142.	1.097	1.041 - 1
298000	293802	31.27	1.462	16.37	1.419	1142.	1.032	1.106
299000	294774	31.27	1.375	16.37	1.335	1142.	9.709 + 3	1.176
300000	295746	31.27	1.289	16.43	1.251	1144.	9.119	1.254
302000	297689	31.26	1.126	16.66	1.094	1152.	8.024	1.435
304000	299632	31.26	9.856 - 8	16.90	9.574 +17	1160.	7.074 + 3	1.639 - 1
306000	301575	31.25	8.642	17.14	8.397	1168.	6.248	1.869
308000	303517	31.24	7.591	17.38	7.379	1176.	5.527	2.127
310000	305459	31.24	6.680	17.61	6.495	1184.	4.898	2.417
312000	307401	31.23	5.888	17.85	5.727	1192.	4.348	2.741
314000	309342	31.23	5.199	18.09	5.058	1199.	3.863	3.103
316000	311283	31.22	4.597	18.33	4.475	1207.	3.441	3.508
318000	313224	31.21	4.072	18.56	3.965	1215.	3.069	3.959
320000	315164	31.21	3.612	18.80	3.519	1222.	2.740	4.461
322000	317104	31.20	3.209	19.04	3.127	1230.	2.451	5.019
324000	319043	31.20	2.856 - 8	19.28	2.783 +17	1237.	2.194 + 3	5.639 - 1
326000	320982	31.19	2.544	19.51	2.481	1245.	1.968	6.326
328000	322921	31.19	2.270	19.75	2.214	1252.	1.767	7.088
330000	324859	31.18	2.029	19.99	1.979	1260.	1.589	7.930
332000	326797	31.17	1.815	20.23	1.771	1267.	1.430	8.860
334000	328735	31.17	1.626	20.47	1.588	1274.	1.289	9.887
336000	330672	31.16	1.458	20.70	1.424	1282.	1.163	1.102 + 0
338000	332609	31.16	1.310	20.94	1.280	1289.	1.051	1.226
340000	334546	31.15	1.178	21.18	1.151	1296.	9.507 + 2	1.363
342000	336482	31.14	1.060	21.42	1.037	1303.	8.609	1.514
344000	338418	31.14	9.556 - 9	21.66	9.347 +16	1310.	7.804 + 2	1.679 + 0
346000	340353	31.13	8.622	21.89	8.437	1317.	7.082	1.860
348000	342288	31.13	7.789	22.13	7.625	1325.	6.434	2.059
350000	344223	31.12	7.043	22.37	6.897	1332.	5.851	2.276
352000	346157	31.11	6.164	22.62	6.039	1362.	5.241	2.599
354000	348091	31.11	5.400	24.59	5.293	1396.	4.707	2.966
356000	350025	31.10	4.760	25.77	4.567	1429.	4.248	3.363
358000	351958	31.10	4.220	26.94	4.139	1461.	3.852	3.792
360000	353891	31.09	3.760	28.12	3.689	1492.	3.507	4.254
362000	355823	31.09	3.366	29.30	3.304	1523.	3.206	4.750
364000	357756	31.08	3.027 - 9	30.47	2.972 +16	1553.	2.941 + 2	5.281 + 0
366000	359687	31.07	2.732	31.65	2.684	1583.	2.706	5.848
368000	361619	31.07	2.476	32.83	2.433	1612.	2.498	6.451
370000	363550	31.06	2.251	34.00	2.213	1640.	2.313	7.091
372000	365481	31.06	2.054	35.18	2.020	1668.	2.147	7.771
374000	367411	31.05	1.879	36.36	1.849	1696.	1.997	8.489
376000	369341	31.04	1.724	37.54	1.697	1723.	1.863	9.248
378000	371270	31.04	1.586	38.71	1.562	1749.	1.741	1.005 + 1
380000	373200	31.03	1.463	39.89	1.441	1776.	1.630	1.089
382000	375129	31.03	1.353	41.07	1.333	1801.	1.530	1.177

ALTITUDE	ACC. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLLISION FREQ.	MEAN FREE PATH		
Z, ft	H, ft	g, ft sec ⁻²	ω , lb/ft ⁻³	H _s , thsd ft	n, ft ⁻³	\bar{V} , ft sec ⁻¹	v , sec ⁻¹	L, ft	
384000	377057	31.02	1.253	-9	42.25	1.236 +16	1827.	1.438 + 2	1.270 + 1
386000	378985	31.02	1.164		43.43	1.148	1852.	1.354	1.368
388000	380913	31.01	1.083		44.61	1.068	1877.	1.277	1.469
390000	382840	31.00	1.009		45.79	9.960 +15	1901.	1.207	1.576
392000	384767	31.00	9.422	-10	46.97	9.304	1925.	1.141	1.687
394000	386694	30.99	8.813		48.15	8.706	1949.	1.081	1.803
396000	388620	30.99	8.256		49.33	8.159	1973.	1.026	1.924
398000	390546	30.98	7.746		50.51	7.659	1996.	9.740 + 1	2.049
400000	392472	30.97	7.279		51.69	7.200	2019.	9.262	2.180
402000	394397	30.97	6.849		52.87	6.778	2042.	8.817	2.316
404000	396322	30.96	6.453	-10	54.05	6.389 +15	2064.	8.403 + 1	2.457 + 1
406000	398247	30.96	6.088		55.23	6.030	2087.	8.017	2.603
408000	400171	30.95	5.751		56.41	5.699	2109.	7.656	2.754
410000	402095	30.95	5.439		57.59	5.392	2130.	7.318	2.911
412000	404018	30.94	5.150		58.77	5.107	2152.	7.002	3.073
414000	405941	30.93	4.881		59.96	4.843	2173.	6.705	3.241
416000	407864	30.93	4.631		61.14	4.597	2194.	6.427	3.414
418000	409786	30.92	4.398		62.32	4.368	2215.	6.165	3.594
420000	411708	30.92	4.181		63.50	4.154	2236.	5.918	3.778
422000	413630	30.91	3.979		64.69	3.955	2256.	5.686	3.969
424000	415551	30.90	3.789	-10	65.87	3.768 +15	2277.	5.466 + 1	4.165 + 1
426000	417472	30.90	3.612		67.05	3.594	2297.	5.259	4.368
428000	419393	30.89	3.446		68.24	3.430	2317.	5.063	4.576
430000	421313	30.89	3.290		69.42	3.277	2337.	4.878	4.790
432000	423233	30.88	3.144		70.60	3.132	2356.	4.703	5.011
434000	425152	30.88	3.006		71.79	2.997	2376.	4.536	5.237
436000	427071	30.87	2.877		72.97	2.869	2395.	4.378	5.470
438000	428990	30.86	2.755		74.16	2.749	2414.	4.228	5.710
440000	430908	30.86	2.640		75.34	2.636	2433.	4.086	5.955
442000	432826	30.85	2.532		76.53	2.529	2452.	3.950	6.207
444000	434744	30.85	2.429	-10	77.71	2.428 +15	2471.	3.821 + 1	6.466 + 1
446000	436661	30.84	2.332		78.90	2.332	2489.	3.698	6.731
448000	438578	30.83	2.241		80.08	2.241	2508.	3.581	7.002
450000	440495	30.83	2.154		81.27	2.156	2526.	3.469	7.281
452000	442411	30.82	2.072		82.46	2.075	2544.	3.362	7.566
454000	444327	30.82	1.994		83.64	1.997	2562.	3.260	7.858
456000	446242	30.81	1.920		84.83	1.924	2580.	3.163	8.156
458000	448157	30.81	1.850		86.02	1.855	2598.	3.070	8.462
460000	450072	30.80	1.783		87.20	1.789	2615.	2.980	8.775
462000	451987	30.79	1.719		88.39	1.726	2633.	2.895	9.094
464000	453901	30.79	1.659	-10	89.58	1.666 +15	2650.	2.813 + 1	9.421 + 1
466000	455814	30.78	1.601		90.76	1.609	2667.	2.735	9.754
468000	457728	30.78	1.546		91.95	1.555	2685.	2.659	1.010 + 2
470000	459641	30.77	1.494		93.14	1.503	2702.	2.587	1.044
472000	461555	30.77	1.444		94.33	1.453	2718.	2.517	1.080
474000	463466	30.76	1.396		95.52	1.406	2735.	2.451	1.116
476000	465377	30.75	1.351		96.71	1.361	2752.	2.387	1.153
478000	467289	30.75	1.307		97.90	1.318	2769.	2.325	1.191
480000	469200	30.74	1.265		99.08	1.277	2785.	2.266	1.229
482000	471111	30.74	1.226		100.3	1.237	2802.	2.208	1.269
484000	473022	30.73	1.187	-10	101.5	1.199 +15	2818.	2.153 + 1	1.309 + 2
486000	474932	30.73	1.151		102.7	1.163	2834.	2.100	1.349
488000	476841	30.72	1.116		103.8	1.129	2850.	2.049	1.391
490000	478751	30.71	1.082		105.0	1.095	2866.	2.000	1.433
492000	480660	30.71	1.050		106.2	1.063	2882.	1.953	1.476
494000	482569	30.70	1.019		107.4	1.033	2898.	1.907	1.520
496000	484477	30.70	9.895	-11	108.6	1.003	2914.	1.862	1.564
498000	486385	30.69	9.610		109.8	9.750 +14	2929.	1.820	1.610
500000	488292	30.68	9.336		111.0	9.478	2945.	1.778	1.656
502000	490200	30.68	9.073		112.2	9.217	2960.	1.738	1.703

ALTITUDE		ACC. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLLISION FREQ.	MEAN FREE PATH				
Z, ft	H, ft	g, ft sec ⁻²	α , lbj ft ⁻³	H _s , thsd ft	n, ft ⁻³	\bar{V} , ft sec ⁻¹	v, sec ⁻¹	L, ft				
504000	492107	30.67	8.819	-11	113.4	8.965	+14	2976.	1.700	+1	1.751	+2
506000	494013	30.67	8.576		114.6	8.723		2991.	1.662		1.799	
508000	495919	30.66	8.341		115.8	8.491		3006.	1.626		1.849	
510000	497825	30.66	8.116		117.0	8.266		3022.	1.591		1.899	
512000	499731	30.65	7.898		118.1	8.050		3037.	1.558		1.950	
514000	501636	30.64	7.689		119.3	7.842		3052.	1.525		2.001	
516000	503540	30.64	7.487		120.5	7.641		3067.	1.493		2.054	
518000	505445	30.63	7.292		121.7	7.448		3081.	1.462		2.107	
520000	507349	30.63	7.104		122.9	7.261		3096.	1.432		2.162	
522000	509253	30.62	6.923		124.1	7.081		3111.	1.403		2.217	
524000	511156	30.62	6.747	-11	125.3	6.907	+14	3126.	1.375	+1	2.272	+2
526000	513059	30.61	6.578		126.5	6.739		3140.	1.348		2.329	
528000	514961	30.60	6.415		127.7	6.577		3155.	1.322		2.387	
530000	516864	30.60	6.257		128.9	6.420		3169.	1.296		2.445	
532000	518766	30.59	6.105		130.1	6.268		3183.	1.271		2.504	
534000	520667	30.59	5.957		131.3	6.121		3198.	1.247		2.564	
536000	522568	30.58	5.815		132.5	5.980		3212.	1.224		2.625	
538000	524469	30.58	5.677		133.7	5.842		3226.	1.201		2.687	
540000	526370	30.57	5.561		134.4	5.728		3235.	1.181		2.740	
542000	528270	30.56	5.455		135.0	5.623		3242.	1.161		2.791	
544000	530170	30.56	5.350	-11	135.6	5.520	+14	3249.	1.143	+1	2.843	+2
546000	532069	30.55	5.249		136.3	5.420		3256.	1.124		2.896	
548000	533968	30.55	5.149		136.9	5.321		3263.	1.106		2.949	
550000	535867	30.54	5.052		137.5	5.226		3270.	1.089		3.004	
552000	537765	30.54	4.957		138.1	5.132		3277.	1.071		3.058	
554000	539663	30.53	4.865		138.7	5.041		3284.	1.055		3.114	
556000	541561	30.52	4.774		139.3	4.951		3291.	1.038		3.170	
558000	543458	30.52	4.686		139.9	4.864		3298.	1.022		3.227	
560000	545355	30.51	4.599		140.5	4.779		3304.	1.006		3.285	
562000	547252	30.51	4.515		141.1	4.695		3311.	9.906	+0	3.343	
564000	549148	30.50	4.432	-11	141.8	4.614	+14	3318.	9.754	+0	3.402	+2
566000	551044	30.50	4.351		142.4	4.534		3325.	9.605		3.462	
568000	552939	30.49	4.272		143.0	4.456		3332.	9.460		3.522	
570000	554834	30.48	4.195		143.6	4.380		3339.	9.317		3.583	
572000	556729	30.48	4.120		144.2	4.306		3346.	9.178		3.645	
574000	558624	30.47	4.050		144.7	4.237		3351.	9.045		3.709	
576000	560518	30.47	3.985		145.0	4.174		3354.	8.920		3.760	
578000	562411	30.46	3.922		145.3	4.112		3357.	8.796		3.817	
580000	564305	30.46	3.860		145.6	4.051		3361.	8.675		3.874	
582000	566198	30.45	3.799		146.0	3.992		3364.	8.556		3.932	
584000	568091	30.44	3.739	-11	146.3	3.933	+14	3368.	8.439	+0	3.990	+2
586000	569983	30.44	3.681		146.6	3.876		3371.	8.325		4.049	
588000	571875	30.43	3.623		146.9	3.820		3374.	8.212		4.109	
590000	573767	30.43	3.566		147.2	3.764		3378.	8.101		4.170	
592000	575658	30.42	3.511		147.6	3.710		3381.	7.992		4.231	
594000	577549	30.42	3.456		147.9	3.657		3384.	7.884		4.293	
596000	579439	30.41	3.402		148.2	3.604		3388.	7.779		4.355	
598000	581330	30.41	3.349		148.5	3.553		3391.	7.676		4.418	
600000	583219	30.40	3.297		148.8	3.502		3394.	7.574		4.482	
602000	585109	30.39	3.246		149.2	3.453		3398.	7.474		4.546	
604000	586998	30.39	3.196	-11	149.5	3.404	+14	3401.	7.376	+0	4.611	+2
606000	588887	30.38	3.147		149.8	3.356		3404.	7.279		4.677	
608000	590775	30.38	3.099		150.1	3.309		3408.	7.184		4.743	
610000	592663	30.37	3.051		150.4	3.263		3411.	7.091		4.810	
612000	594551	30.37	3.005		150.8	3.217		3414.	6.999		4.878	
614000	596439	30.36	2.959		151.1	3.173		3418.	6.909		4.947	
616000	598326	30.35	2.914		151.4	3.129		3421.	6.820		5.016	
618000	600212	30.35	2.870		151.7	3.086		3424.	6.732		5.087	
620000	602099	30.34	2.826		152.1	3.043		3428.	6.645		5.158	
622000	603985	30.34	2.783		152.4	3.001		3431.	6.560		5.230	

ALTITUDE		ACC. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	P/RT. SPEED	COLLISION FREQ.	MEAN FREE PATH				
Z, ft	H, ft	g, ft sec ⁻²	ω , lbj ft ⁻³	H _s , thsd ft	n, ft ⁻³	V, ft sec ⁻¹	v, sec ⁻¹	L, ft				
624000	605870	30.33	2.741	-11	152.7	2.960	+14	3434.	6.476	+ 0	5.303	+ 2
626000	607756	30.33	2.700		153.0	2.919		3438.	6.394		5.376	
628000	609641	30.32	2.659		153.3	2.880		3441.	6.313		5.451	
630000	611525	30.31	2.619		153.7	2.840		3444.	6.233		5.526	
632000	613409	30.31	2.580		154.0	2.802		3447.	6.154		5.602	
634000	615293	30.30	2.542		154.3	2.764		3451.	6.076		5.679	
636000	617177	30.30	2.504		154.6	2.726		3454.	5.999		5.757	
638000	619060	30.29	2.466		154.9	2.689		3457.	5.924		5.836	
640000	620943	30.29	2.430		155.3	2.653		3460.	5.850		5.916	
642000	622825	30.28	2.394		155.6	2.618		3464.	5.776		5.996	
644000	624707	30.28	2.358	-11	155.9	2.582	+14	3467.	5.704	+ 0	6.078	+ 2
646000	626589	30.27	2.324		156.2	2.548		3470.	5.633		6.160	
648000	628471	30.26	2.289		156.6	2.514		3473.	5.563		6.243	
650000	630352	30.26	2.256		156.9	2.480		3477.	5.494		6.328	
652000	632232	30.25	2.223		157.2	2.447		3480.	5.426		6.413	
654000	634113	30.25	2.190		157.5	2.415		3483.	5.359		6.499	
656000	635993	30.24	2.158		157.8	2.383		3486.	5.293		6.586	
658000	637873	30.24	2.126		158.2	2.352		3490.	5.228		6.674	
660000	639752	30.23	2.095		158.5	2.321		3493.	5.164		6.764	
662000	641631	30.22	2.065		158.8	2.290		3496.	5.101		6.854	
664000	643510	30.22	2.035	-11	159.1	2.260	+14	3499.	5.039	+ 0	6.945	+ 2
666000	645388	30.21	2.006		159.5	2.231		3503.	4.977		7.037	
668000	647266	30.21	1.977		159.8	2.201		3506.	4.917		7.130	
670000	649143	30.20	1.948		160.1	2.173		3509.	4.857		7.224	
672000	651021	30.20	1.920		160.4	2.144		3512.	4.799		7.319	
674000	652897	30.19	1.893		160.7	2.117		3515.	4.741		7.415	
676000	654774	30.19	1.865		161.1	2.089		3519.	4.684		7.512	
678000	656650	30.18	1.839		161.4	2.063		3522.	4.628		7.610	
680000	658526	30.17	1.814		161.6	2.037		3524.	4.573		7.705	
682000	660402	30.17	1.789		161.8	2.012		3526.	4.520		7.801	
684000	662277	30.16	1.764	-11	162.1	1.987	+14	3528.	4.467	+ 0	7.898	+ 2
686000	664151	30.16	1.740		162.3	1.963		3530.	4.415		7.997	
688000	666026	30.15	1.716		162.5	1.939		3533.	4.363		8.096	
690000	667900	30.15	1.693		162.8	1.915		3535.	4.313		8.197	
692000	669774	30.14	1.670		163.0	1.891		3537.	4.263		8.298	
694000	671647	30.13	1.647		163.2	1.868		3539.	4.213		8.401	
696000	673520	30.13	1.625		163.5	1.846		3542.	4.164		8.505	
698000	675393	30.12	1.603		163.7	1.823		3544.	4.116		8.609	
700000	677265	30.12	1.581		163.9	1.801		3546.	4.069		8.715	
702000	679137	30.11	1.560		164.2	1.779		3548.	4.022		8.823	
704000	681009	30.11	1.539	-11	164.4	1.757	+14	3550.	3.975	+ 0	8.931	+ 2
706000	682880	30.10	1.518		164.7	1.736		3553.	3.930		9.040	
708000	684751	30.10	1.497		164.9	1.715		3555.	3.885		9.151	
710000	686622	30.09	1.477		165.1	1.694		3557.	3.840		9.263	
712000	688492	30.08	1.457		165.4	1.674		3559.	3.796		9.376	
714000	690362	30.08	1.438		165.6	1.654		3561.	3.753		9.490	
716000	692232	30.07	1.419		165.8	1.634		3564.	3.710		9.606	
718000	694101	30.07	1.400		166.1	1.614		3566.	3.668		9.722	
720000	695970	30.06	1.381		166.3	1.595		3568.	3.626		9.840	
722000	697838	30.06	1.362		166.5	1.576		3570.	3.585		9.959	
724000	699707	30.05	1.344	-11	166.8	1.557	+14	3572.	3.544	+ 0	1.008	+ 3
726000	701574	30.05	1.326		167.0	1.539		3575.	3.504		1.020	
728000	703442	30.04	1.309		167.2	1.520		3577.	3.464		1.032	
730000	705309	30.03	1.291		167.5	1.502		3579.	3.425		1.045	
732000	707176	30.03	1.274		167.7	1.484		3581.	3.387		1.057	
734000	709042	30.02	1.257		168.0	1.467		3583.	3.349		1.070	
736000	710909	30.02	1.241		168.2	1.449		3586.	3.311		1.083	
738000	712774	30.01	1.224		168.4	1.432		3588.	3.274		1.096	
740000	714640	30.01	1.208		168.7	1.415		3590.	3.237		1.109	
742000	716505	30.00	1.192		168.9	1.399		3592.	3.201		1.122	

ALTITUDE		ACC. OF	SPECIFIC	SCALE	NUMBER	PART.	COLLISION	MEAN				
Z, ft	H, ft'	GRAV.	WEIGHT	HEIGHT	DENSITY	SPEED	FREQ.	FREE PATH				
		g, ft sec ⁻²	w, lb, ft ⁻³	H _s , thsd ft	n, ft ⁻³	\bar{V} , ft sec ⁻¹	v, sec ⁻¹	L, ft				
744000	718370	30.00	1.177	-11	169.1	1.382	+14	3594.	3.165	+ 0	1.136	+ 3
746000	720234	29.99	1.161		169.4	1.366		3596.	3.130		1.149	
748000	722098	29.98	1.146		169.6	1.350		3599.	3.095		1.163	
750000	723962	29.98	1.131		169.8	1.334		3601.	3.060		1.177	
752000	725825	29.97	1.116		170.1	1.318		3603.	3.026		1.191	
754000	727688	29.97	1.102		170.3	1.303		3605.	2.993		1.205	
756000	729551	29.96	1.087		170.6	1.288		3607.	2.960		1.219	
758000	731413	29.96	1.073		170.8	1.273		3610.	2.927		1.233	
760000	733275	29.95	1.059		171.0	1.258		3612.	2.895		1.248	
762000	735137	29.95	1.045		171.3	1.243		3614.	2.863		1.262	
764000	736998	29.94	1.032	-11	171.5	1.229	+14	3616.	2.831	+ 0	1.277	+ 3
766000	738859	29.93	1.019		171.7	1.215		3618.	2.800		1.292	
768000	740719	29.93	1.005		172.0	1.201		3620.	2.769		1.307	
770000	742580	29.92	9.924	-12	172.2	1.187		3622.	2.739		1.323	
772000	744440	29.92	9.796		172.4	1.173		3625.	2.709		1.338	
774000	746299	29.91	9.670		172.7	1.159		3627.	2.679		1.354	
776000	748158	29.91	9.545		172.9	1.146		3629.	2.650		1.370	
778000	750017	29.90	9.423		173.2	1.133		3631.	2.621		1.385	
780000	751876	29.90	9.302		173.4	1.120		3633.	2.592		1.402	
782000	753734	29.89	9.183		173.6	1.107		3635.	2.564		1.418	
784000	755592	29.88	9.065	-12	173.9	1.094	+14	3638.	2.536	+ 0	1.434	+ 3
786000	757449	29.88	8.949		174.1	1.082		3640.	2.509		1.451	
788000	759307	29.87	8.835		174.3	1.069		3642.	2.481		1.468	
790000	761163	29.87	8.723		174.6	1.057		3644.	2.454		1.485	
792000	763020	29.86	8.612		174.8	1.045		3646.	2.428		1.502	
794000	764876	29.86	8.502		175.1	1.033		3648.	2.402		1.519	
796000	766732	29.85	8.394		175.3	1.022		3650.	2.376		1.536	
798000	768587	29.85	8.288		175.5	1.010		3652.	2.350		1.554	
800000	770442	29.84	8.183		175.8	9.985	+13	3655.	2.325		1.572	
805000	775079	29.83	7.927		176.4	9.705		3660.	2.263		1.617	
810000	779713	29.81	7.680	-12	177.0	9.434	+13	3665.	2.203	+ 0	1.664	+ 3
815000	784345	29.80	7.441		177.5	9.171		3671.	2.145		1.711	
820000	788975	29.79	7.211		178.1	8.916		3676.	2.088		1.760	
825000	793604	29.77	6.988		178.7	8.669		3681.	2.033		1.810	
830000	798228	29.76	6.773		179.3	8.430		3686.	1.980		1.862	
835000	802851	29.74	6.566		179.9	8.198		3692.	1.928		1.915	
840000	807473	29.73	6.365		180.5	7.973		3697.	1.878		1.969	
845000	812092	29.72	6.171		181.1	7.755		3702.	1.829		2.024	
850000	816709	29.70	5.984		181.7	7.544		3707.	1.782		2.081	
855000	821324	29.69	5.802		182.3	7.339		3713.	1.736		2.139	
860000	825936	29.68	5.627	-12	182.9	7.140	+13	3718.	1.691	+ 0	2.198	+ 3
865000	830547	29.66	5.458		183.5	6.947		3723.	1.648		2.259	
870000	835156	29.65	5.294		184.1	6.760		3728.	1.606		2.322	
875000	839762	29.63	5.136		184.7	6.578		3733.	1.565		2.386	
880000	844366	29.62	4.983		185.3	6.402		3739.	1.525		2.452	
885000	848969	29.61	4.835		185.9	6.231		3744.	1.486		2.519	
890000	853569	29.59	4.692		186.5	6.065		3749.	1.449		2.588	
895000	858167	29.58	4.553		187.1	5.904		3754.	1.412		2.658	
900000	862762	29.57	4.419		187.7	5.748		3759.	1.377		2.731	
905000	867356	29.55	4.289		188.3	5.596		3764.	1.342		2.805	
910000	871948	29.54	4.164	-12	188.9	5.449	+13	3769.	1.308	+ 0	2.881	+ 3
915000	876537	29.53	4.043		189.5	5.306		3774.	1.276		2.958	
920000	881125	29.51	3.925		190.1	5.167		3780.	1.244		3.038	
925000	885710	29.50	3.811		190.7	5.032		3785.	1.213		3.119	
930000	890293	29.49	3.701		191.3	4.901		3790.	1.183		3.203	
935000	894874	29.47	3.595		191.9	4.773		3795.	1.154		3.288	
940000	899453	29.46	3.491		192.5	4.650		3800.	1.126		3.376	
945000	904030	29.44	3.391		193.1	4.530		3805.	1.098		3.465	
950000	908605	29.43	3.294		193.7	4.413		3810.	1.071		3.557	
955000	913177	29.42	3.201		194.3	4.300		3815.	1.045		3.651	

ALTITUDE		ACC. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLLISION FREQ.	MEAN FREE PATH				
Z, ft	h, ft	g, ft sec ⁻²	ω , lb/ft ⁻³	H, thsd ft	n, ft ⁻³	\bar{V} , ft sec ⁻¹	v, sec ⁻¹	L, ft				
960000	917748	29.40	3.110	-10	194.9	4.189	+13	3820.	1.020	+ 0	3.747	+ 3
965000	922316	29.39	3.022		195.5	4.082		3825.	9.948	- 1	3.845	
970000	926883	29.38	2.937		196.1	3.978		3830.	9.708		3.945	
975000	931447	29.36	2.854		196.7	3.877		3835.	9.473		4.048	
980000	936009	29.35	2.774		197.3	3.779		3840.	9.245		4.154	
985000	940569	29.34	2.697		197.9	3.683		3845.	9.023		4.261	
990000	945127	29.32	2.621		198.5	3.590		3850.	8.807		4.372	
995000	949683	29.31	2.548		199.1	3.500		3855.	8.596		4.485	
1000000	954237	29.30	2.478		199.7	3.412		3860.	8.391		4.600	
1005000	958789	29.28	2.409		200.3	3.327		3865.	8.192		4.718	
1010000	963339	29.27	2.343	-12	200.9	3.244	+13	3870.	7.997	- 1	4.839	+ 3
1015000	967886	29.26	2.279		201.5	3.163		3875.	7.808		4.962	
1020000	972432	29.24	2.216		202.1	3.084		3880.	7.624		5.089	
1025000	976975	29.23	2.156		202.7	3.008		3885.	7.444		5.218	
1030000	981517	29.22	2.097		203.3	2.934		3889.	7.269		5.350	
1035000	986056	29.20	2.040		203.9	2.861		3894.	7.099		5.486	
1040000	990593	29.19	1.985		204.5	2.791		3899.	6.933		5.624	
1045000	995128	29.18	1.931		205.2	2.722		3904.	6.772		5.765	
1050000	999661	29.16	1.879		205.8	2.656		3909.	6.614		5.910	
1055000	1004192	29.15	1.829		206.4	2.591		3914.	6.461		6.058	
1060000	1008721	29.14	1.780	-12	207.0	2.528	+13	3919.	6.311	- 1	6.209	+ 3
1065000	1013248	29.12	1.732		207.6	2.466		3924.	6.166		6.364	
1070000	1017773	29.11	1.686		208.2	2.407		3928.	6.024		6.522	
1075000	1022296	29.10	1.642		208.8	2.349		3933.	5.885		6.683	
1080000	1026816	29.08	1.598		209.4	2.292		3938.	5.750		6.848	
1085000	1031335	29.07	1.556		210.0	2.237		3943.	5.619		7.017	
1090000	1035851	29.06	1.515		210.6	2.183		3948.	5.491		7.190	
1095000	1040366	29.04	1.475		211.2	2.131		3952.	5.366		7.366	
1100000	1044878	29.03	1.437		211.8	2.080		3957.	5.244		7.546	
1105000	1049389	29.02	1.399		212.4	2.030		3962.	5.125		7.730	
1110000	1053897	29.00	1.363	-12	213.0	1.982	+13	3967.	5.010	- 1	7.918	+ 3
1115000	1058403	28.99	1.327		213.7	1.935		3972.	4.897		8.111	
1120000	1062908	28.98	1.293		214.3	1.889		3976.	4.787		8.307	
1125000	1067410	28.96	1.260		214.9	1.845		3981.	4.679		8.508	
1130000	1071910	28.95	1.227		215.5	1.801		3986.	4.575		8.713	
1135000	1076408	28.94	1.196		216.1	1.759		3991.	4.472		8.922	
1140000	1080904	28.92	1.165		216.7	1.718		3995.	4.373		9.136	
1145000	1085398	28.91	1.135		217.3	1.678		4000.	4.276		9.355	
1150000	1089890	28.90	1.107		217.9	1.639		4005.	4.181		9.578	
1155000	1094380	28.89	1.078		218.5	1.601		4009.	4.088		9.806	
1160000	1098868	28.87	1.051	-12	219.2	1.563	+13	4014.	3.998	- 1	1.004	+ 4
1165000	1103353	28.86	1.025		219.8	1.527		4019.	3.910		1.028	
1170000	1107837	28.85	9.988	-13	220.4	1.492		4023.	3.824		1.052	
1175000	1112319	28.83	9.757		221.0	1.458		4028.	3.741		1.077	
1180000	1116799	28.82	9.493		221.6	1.424		4033.	3.659		1.102	
1185000	1121276	28.81	9.256		222.2	1.391		4037.	3.579		1.128	
1190000	1125752	28.79	9.026		222.8	1.360		4042.	3.501		1.154	
1195000	1130226	28.78	8.801		223.4	1.329		4047.	3.425		1.181	
1200000	1134697	28.77	8.583		224.1	1.298		4051.	3.351		1.209	
1205000	1139167	28.75	8.371		224.7	1.269		4056.	3.279		1.237	
1210000	1143634	28.74	8.165	-13	225.3	1.240	+13	4061.	3.208	- 1	1.266	+ 4
1215000	1148100	28.73	7.964		225.9	1.212		4065.	3.139		1.295	
1220000	1152567	28.72	7.769		226.5	1.185		4070.	3.072		1.325	
1225000	1157035	28.70	7.579		227.1	1.158		4074.	3.006		1.355	
1230000	1161484	28.69	7.394		227.7	1.132		4079.	2.942		1.387	
1235000	1165941	28.68	7.214		228.4	1.107		4084.	2.879		1.418	
1240000	1170397	28.66	7.039		229.0	1.082		4088.	2.818		1.451	
1245000	1174850	28.65	6.869		229.6	1.058		4093.	2.758		1.484	
1250000	1179302	28.64	6.701		230.2	1.034		4097.	2.700		1.518	
1255000	1183751	28.62	6.542		230.8	1.011		4102.	2.643		1.552	

ALTITUDE		ACC. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLLISION FREQ.	MEAN FREE PATH				
Z, ft	H, ft'	g, ft sec ⁻²	w, lb ft ⁻³	H _s , thsd ft	n, ft ⁻³	\bar{V} , ft sec ⁻¹	v, sec ⁻¹	L, ft				
1260000	1188198	28.61	6.385	-13	231.4	9.888	+12	4106.	2.587	- 1	1.587	+ 4
1265000	1192644	28.60	6.232		232.1	9.669		4111.	2.533		1.623	
1270000	1197087	28.59	6.083		232.7	9.456		4115.	2.479		1.660	
1275000	1201528	28.57	5.938		233.3	9.248		4120.	2.428		1.697	
1280000	1205967	28.56	5.797		233.9	9.045		4125.	2.377		1.735	
1285000	1210405	28.55	5.660		234.5	8.847		4129.	2.327		1.774	
1290000	1214840	28.53	5.526		235.1	8.653		4134.	2.279		1.814	
1295000	1219273	28.52	5.396		235.8	8.465		4138.	2.232		1.854	
1300000	1223704	28.51	5.269		236.4	8.280		4143.	2.185		1.896	
1305000	1228134	28.50	5.145		237.0	8.101		4147.	2.140		1.938	
1310000	1232561	28.48	5.025	-13	237.6	7.925	+12	4151.	2.096	- 1	1.980	+ 4
1315000	1236986	28.47	4.907		238.2	7.754		4156.	2.053		2.024	
1320000	1241410	28.46	4.793		238.9	7.587		4160.	2.011		2.069	
1325000	1245831	28.44	4.682		239.5	7.424		4165.	1.970		2.114	
1330000	1250250	28.43	4.573		240.1	7.264		4169.	1.930		2.161	
1335000	1254667	28.42	4.468		240.7	7.109		4174.	1.890		2.208	
1340000	1259083	28.41	4.365		241.3	6.957		4178.	1.852		2.256	
1345000	1263496	28.39	4.264		242.0	6.808		4183.	1.814		2.305	
1350000	1267907	28.38	4.167		242.6	6.663		4187.	1.778		2.355	
1355000	1272317	28.37	4.071		243.2	6.522		4191.	1.742		2.407	
1360000	1276724	28.35	3.978	-13	243.8	6.384	+12	4196.	1.707	- 1	2.459	+ 4
1365000	1281129	28.34	3.888		244.5	6.249		4200.	1.672		2.512	
1370000	1285533	28.33	3.799		245.1	6.117		4205.	1.639		2.566	
1375000	1289934	28.32	3.713		245.7	5.988		4209.	1.606		2.621	
1380000	1294334	28.30	3.629		246.3	5.863		4213.	1.574		2.677	
1385000	1298731	28.29	3.548		246.9	5.740		4218.	1.542		2.735	
1390000	1303126	28.28	3.468		247.6	5.620		4222.	1.512		2.793	
1395000	1307520	28.26	3.390		248.2	5.503		4227.	1.482		2.852	
1400000	1311911	28.25	3.314		248.8	5.388		4231.	1.452		2.913	
1405000	1316301	28.24	3.240		249.4	5.276		4235.	1.424		2.975	
1410000	1320688	28.23	3.168	-13	250.1	5.167	+12	4240.	1.396	- 1	3.038	+ 4
1415000	1325074	28.21	3.098		250.7	5.060		4244.	1.368		3.102	
1420000	1329458	28.20	3.029		251.3	4.956		4248.	1.341		3.167	
1425000	1333839	28.19	2.962		251.9	4.854		4253.	1.315		3.234	
1430000	1338219	28.18	2.897		252.6	4.754		4257.	1.289		3.302	
1435000	1342597	28.16	2.833		253.2	4.656		4261.	1.264		3.371	
1440000	1346972	28.15	2.771		253.8	4.561		4266.	1.240		3.441	
1445000	1351346	28.14	2.710		254.4	4.468		4270.	1.215		3.513	
1450000	1355718	28.13	2.651		255.1	4.377		4274.	1.192		3.586	
1455000	1360088	28.11	2.593		255.7	4.288		4278.	1.169		3.660	
1460000	1364456	28.10	2.537	-13	256.3	4.201	+12	4283.	1.146	- 1	3.736	+ 4
1465000	1368822	28.09	2.482		257.0	4.116		4287.	1.124		3.813	
1470000	1373186	28.08	2.428		257.6	4.033		4291.	1.103		3.892	
1475000	1377548	28.06	2.376		258.2	3.952		4296.	1.082		3.972	
1480000	1381908	28.05	2.325		258.8	3.872		4300.	1.061		4.053	
1485000	1386266	28.04	2.275		259.5	3.795		4304.	1.041		4.136	
1490000	1390622	28.02	2.226		260.1	3.719		4308.	1.021		4.221	
1495000	1394976	28.01	2.178		260.7	3.644		4313.	1.001		4.307	
1500000	1399329	28.00	2.132		261.4	3.572		4317.	9.823	- 2	4.394	
1505000	1403679	27.99	2.086		262.0	3.501		4321.	9.637		4.484	
1510000	1408027	27.97	2.042	-13	262.6	3.431	+12	4325.	9.455	- 2	4.574	+ 4
1515000	1412374	27.96	1.999		263.2	3.363		4329.	9.277		4.667	
1520000	1416718	27.95	1.957		263.9	3.297		4334.	9.103		4.761	
1525000	1421061	27.94	1.915		264.5	3.232		4338.	8.932		4.857	
1530000	1425401	27.92	1.875		265.1	3.168		4342.	8.764		4.954	
1535000	1429740	27.91	1.836		265.8	3.106		4346.	8.601		5.053	
1540000	1434077	27.90	1.797		266.4	3.045		4350.	8.440		5.154	
1545000	1438411	27.89	1.760		267.0	2.986		4355.	8.283		5.257	
1550000	1442744	27.87	1.723		267.7	2.927		4359.	8.129		5.362	
1555000	1447075	27.86	1.687		268.3	2.870		4363.	7.978		5.463	

ALTITUDE		ACC. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLLISION FREQ.	MEAN FREE PATH				
Z, ft	H, ft	g, ft sec ⁻²	ρ , lb/ft ⁻³	H_g , thsd ft	n, ft ⁻³	\bar{V} , ft sec ⁻¹	ν , sec ⁻¹	L, ft				
1560000	1451404	27.85	1.652	-13	268.9	2.814	+12	4367.	7.831	- 2	5.577	+ 4
1565000	1455731	27.84	1.618		269.6	2.760		4371.	7.686		5.687	
1570000	1460056	27.83	1.585		270.2	2.706		4375.	7.545		5.799	
1575000	1464380	27.81	1.552		270.8	2.654		4380.	7.406		5.913	
1580000	1468701	27.80	1.520		271.5	2.603		4384.	7.270		6.030	
1585000	1473020	27.79	1.489		272.1	2.553		4388.	7.137		6.148	
1590000	1477338	27.78	1.458		272.7	2.504		4392.	7.007		6.268	
1595000	1481653	27.76	1.429		273.4	2.456		4396.	6.879		6.391	
1600000	1485967	27.75	1.399		274.0	2.409		4400.	6.754		6.515	
1605000	1490278	27.74	1.371		274.6	2.363		4404.	6.631		6.642	
1610000	1494588	27.73	1.343	-13	275.3	2.318	+12	4408.	6.511	- 2	6.771	+ 4
1615000	1498896	27.71	1.316		275.9	2.274		4413.	6.393		6.902	
1620000	1503202	27.70	1.289		276.5	2.231		4417.	6.278		7.035	
1625000	1507505	27.69	1.263		277.2	2.189		4421.	6.165		7.171	
1630000	1511808	27.68	1.238		277.8	2.148		4425.	6.054		7.309	
1635000	1516108	27.66	1.213		278.4	2.107		4429.	5.946		7.449	
1640000	1520406	27.65	1.189		279.1	2.068		4433.	5.839		7.592	
1645000	1524702	27.64	1.165		279.7	2.029		4437.	5.735		7.737	
1650000	1528997	27.63	1.142		280.3	1.991		4441.	5.633		7.884	
1655000	1533289	27.62	1.119		281.0	1.954		4445.	5.533		8.034	
1660000	1537580	27.60	1.097	-13	281.6	1.917	+12	4449.	5.434	- 2	8.187	+ 4
1665000	1541868	27.59	1.075		282.3	1.881		4453.	5.338		8.342	
1670000	1546155	27.58	1.054		282.9	1.847		4457.	5.244		8.500	
1675000	1550440	27.57	1.033		283.5	1.812		4461.	5.151		8.660	
1680000	1554723	27.55	1.013		284.2	1.779		4465.	5.061		8.824	
1685000	1559004	27.54	9.931	-14	284.8	1.746		4469.	4.972		8.989	
1690000	1563283	27.53	9.736		285.4	1.714		4473.	4.885		9.158	
1695000	1567560	27.52	9.546		286.1	1.682		4477.	4.799		9.330	
1700000	1571836	27.50	9.360		286.7	1.651		4481.	4.715		9.504	
1705000	1576109	27.49	9.178		287.4	1.621		4485.	4.633		9.681	
1710000	1580381	27.48	9.000	-14	288.0	1.592	+12	4489.	4.553	- 2	9.861	+ 4
1715000	1584650	27.47	8.825		288.6	1.563		4493.	4.473		1.004	+ 5
1720000	1588918	27.46	8.655		289.3	1.534		4497.	4.396		1.023	
1725000	1593184	27.44	8.488		289.9	1.506		4501.	4.320		1.042	
1730000	1597448	27.43	8.325		290.6	1.479		4505.	4.245		1.061	
1735000	1601710	27.42	8.165		291.2	1.452		4509.	4.172		1.081	
1740000	1605970	27.41	8.008		291.8	1.426		4513.	4.101		1.101	
1745000	1610228	27.40	7.855		292.5	1.400		4517.	4.030		1.121	
1750000	1614485	27.38	7.705		293.1	1.375		4521.	3.961		1.141	
1755000	1618739	27.37	7.558		293.8	1.351		4525.	3.894		1.162	
1760000	1622992	27.36	7.415	-14	294.4	1.326	+12	4529.	3.827	- 2	1.183	+ 5
1765000	1627243	27.35	7.274		295.1	1.303		4533.	3.762		1.205	
1770000	1631492	27.33	7.137		295.7	1.279		4537.	3.698		1.227	
1775000	1635739	27.32	7.002		296.3	1.257		4541.	3.636		1.249	
1780000	1639984	27.31	6.870		297.0	1.234		4545.	3.574		1.272	
1785000	1644227	27.30	6.741		297.6	1.212		4549.	3.514		1.294	
1790000	1648469	27.29	6.614		298.3	1.191		4553.	3.455		1.318	
1795000	1652708	27.27	6.490		298.9	1.170		4556.	3.397		1.341	
1800000	1656946	27.26	6.369		299.6	1.149		4560.	3.340		1.366	
1805000	1661182	27.25	6.250		300.2	1.129		4564.	3.284		1.390	
1810000	1665415	27.24	6.134	-14	300.9	1.109	+12	4568.	3.229	- 2	1.415	+ 5
1815000	1669647	27.23	6.020		301.5	1.090		4572.	3.175		1.440	
1820000	1673878	27.21	5.909		302.1	1.071		4576.	3.122		1.466	
1825000	1678106	27.20	5.799		302.8	1.052		4580.	3.070		1.492	
1830000	1682332	27.19	5.692		303.4	1.034		4584.	3.019		1.518	
1835000	1686557	27.18	5.587		304.1	1.016		4588.	2.969		1.545	
1840000	1690780	27.17	5.485		304.7	9.983	+11	4591.	2.920		1.572	
1845000	1695000	27.15	5.384		305.4	9.810		4595.	2.872		1.600	
1850000	1699219	27.14	5.286		306.0	9.641		4599.	2.825		1.628	
1855000	1703437	27.13	5.189		306.7	9.474		4603.	2.778		1.657	

ALTITUDE		ACC. OF GRAV.	SPECIFIC WEIGHT	SCALE HEIGHT	NUMBER DENSITY	PART. SPEED	COLLISION FREQ.	MEAN FREE PATH				
Z, ft	H, ft'	g, ft sec ⁻²	ω , lb/ft ⁻³	H_s , thsd ft	n, ft ⁻³	\bar{V} , ft sec ⁻¹	v , sec ⁻¹	L, ft				
1860000	1707652	27.12	5.094	-14	307.3	9.311	+11	4607.	2.733	-2	1.686	+5
1865000	1711865	27.11	5.002		308.0	9.151		4611.	2.688		1.715	
1870000	1716077	27.09	4.911		308.6	8.995		4614.	2.644		1.745	
1875000	1720286	27.08	4.822		309.3	8.841		4618.	2.601		1.775	
1880000	1724494	27.07	4.735		309.9	8.690		4622.	2.559		1.806	
1885000	1728700	27.06	4.649		310.6	8.542		4626.	2.517		1.838	
1890000	1732904	27.05	4.566		311.2	8.396		4630.	2.477		1.869	
1895000	1737107	27.04	4.484		311.9	8.254		4634.	2.437		1.902	
1900000	1741307	27.02	4.403		312.5	8.114		4637.	2.397		1.934	
1905000	1745506	27.01	4.324		313.2	7.977		4641.	2.359		1.968	
1910000	1749702	27.00	4.247	-14	313.8	7.842	+11	4645.	2.321	-2	2.001	+5
1915000	1753897	26.99	4.171		314.5	7.710		4649.	2.283		2.036	
1920000	1758090	26.98	4.097		315.1	7.580		4652.	2.247		2.071	
1925000	1762282	26.96	4.025		315.8	7.453		4656.	2.211		2.106	
1930000	1766471	26.95	3.953		316.4	7.328		4660.	2.176		2.142	
1935000	1770658	26.94	3.883		317.1	7.206		4664.	2.141		2.178	
1940000	1774844	26.93	3.815		317.7	7.085		4668.	2.107		2.215	
1945000	1779028	26.92	3.748		318.4	6.967		4671.	2.074		2.253	
1950000	1783210	26.90	3.682		319.0	6.852		4675.	2.041		2.291	
1955000	1787390	26.89	3.617		319.7	6.738		4679.	2.009		2.329	
1960000	1791569	26.88	3.554	-14	320.3	6.626	+11	4683.	1.977	-2	2.369	+5
1965000	1795745	26.87	3.492		321.0	6.517		4686.	1.946		2.403	
1970000	1799920	26.86	3.431		321.6	6.409		4690.	1.915		2.449	
1975000	1804093	26.85	3.371		322.3	6.304		4694.	1.885		2.490	
1980000	1808264	26.83	3.312		322.9	6.200		4698.	1.856		2.532	
1985000	1812433	26.82	3.255		323.6	6.098		4701.	1.827		2.574	
1990000	1816600	26.81	3.199		324.2	5.999		4705.	1.798		2.617	
1995000	1820766	26.80	3.143		324.9	5.901		4709.	1.770		2.660	
2000000	1824929	26.79	3.089		325.6	5.804		4712.	1.743		2.704	
2005000	1829091	26.78	3.036		326.2	5.710		4716.	1.716		2.749	
2010000	1833251	26.76	2.984	-14	326.9	5.617	+11	4720.	1.689	-2	2.794	+5
2015000	1837410	26.75	2.933		327.5	5.526		4724.	1.663		2.840	
2020000	1841566	26.74	2.883		328.2	5.436		4727.	1.637		2.887	
2025000	1845721	26.73	2.834		328.8	5.349		4731.	1.612		2.935	
2030000	1849873	26.72	2.785		329.5	5.262		4735.	1.587		2.983	
2035000	1854024	26.71	2.738		330.1	5.178		4738.	1.563		3.031	
2040000	1858173	26.69	2.691		330.8	5.094		4742.	1.539		3.081	
2045000	1862321	26.68	2.646		331.5	5.013		4746.	1.516		3.131	
2050000	1866466	26.67	2.601		332.1	4.932		4749.	1.492		3.182	
2055000	1870610	26.66	2.557		332.8	4.854		4753.	1.470		3.234	
2060000	1874752	26.65	2.514	-14	333.4	4.776	+11	4757.	1.447	-2	3.286	+5
2065000	1878892	26.64	2.472		334.1	4.700		4760.	1.425		3.339	
2070000	1883030	26.62	2.430		334.7	4.625		4764.	1.404		3.393	
2075000	1887167	26.61	2.390		335.4	4.552		4768.	1.383		3.448	
2080000	1891301	26.60	2.350		336.1	4.480		4771.	1.362		3.504	
2085000	1895434	26.59	2.311		336.7	4.409		4775.	1.341		3.560	
2090000	1899565	26.58	2.272		337.4	4.340		4778.	1.321		3.617	
2095000	1903695	26.57	2.234		338.0	4.271		4782.	1.301		3.675	
2100000	1907822	26.55	2.197		338.7	4.204		4786.	1.282		3.733	
2120000	1924314	26.51	2.056		341.3	3.947		4800.	1.207		3.976	
2140000	1940777	26.46	1.924	-14	344.0	3.708	+11	4814.	1.137	-2	4.233	+5
2160000	1957212	26.42	1.802		346.6	3.484		4829.	1.072		4.505	
2180000	1973617	26.37	1.689		349.3	3.276		4843.	1.011		4.792	
2200000	1989995	26.32	1.583		351.9	3.081		4857.	0.954	-3	5.094	
2220000	2006344	26.28	1.484		354.6	2.899		4871.	0.998		5.414	
2240000	2022664	26.23	1.393		357.3	2.729		4885.	0.945		5.751	
2260000	2038957	26.19	1.308		359.9	2.570		4899.	0.893		6.106	
2280000	2055221	26.14	1.228		362.6	2.422		4913.	0.841		6.481	
2300000	2071457	26.10	1.154		365.3	2.283		4927.	0.789		6.876	
2320000	2087665	26.05	1.085		368.0	2.153		4941.	0.737		7.291	

TABLE II C
ATMOSPHERIC PROPERTIES AS A FUNCTION OF ALTITUDE
ENGLISH UNITS

Sound Speed, Viscosity, Kinematic Viscosity, and Thermal Conductivity

NOTE: A one- or two-digit number (preceded by a plus or minus sign) following the initial entry of each block indicates the power of 10 by which that entry and each succeeding entry of that block should be multiplied. A change of power occurring within a block is indicated by a similar notation.

LATITUDE		SOUND SPEED	COEFFICIENT OF VISCOSITY		IN. VISCOSITY	TEMPERAL CONDUCT.
Z, ft	z, ft'	C _s , ft sec ⁻¹	μ, lb sec ft ⁻²	μ, lb ft ⁻¹ sec ⁻¹	η, ft ² sec ⁻¹	k, BTU ft ⁻¹ sec ⁻¹ (°R) ⁻¹
-16500	-16512	1178.1	4.0534 - 7	1.3057 - 5	1.0997 - 4	4.4740 - 6
-16000	-16012	1178.3	4.0489	1.3027	1.0921	4.4619
-15500	-15512	1174.5	4.0394	1.2996	1.1041	4.4498
-15000	-15011	1172.5	4.0293	1.2966	1.1162	4.4376
-14500	-14510	1170.8	4.0203	1.2935	1.1284	4.4254
-14000	-14009	1169.0	4.0103	1.2904	1.1409	4.4132
-13500	-13503	1167.1	4.0012	1.2873	1.1535	4.4011
-13000	-13008	1165.3	3.9916	1.2843	1.1663	4.3889
-12500	-12507	1163.5	3.9820	1.2812	1.1792	4.3766
-12000	-12007	1161.6	3.9724	1.2781	1.1924	4.3644
-11500	-11506	1159.8	3.9628 - 7	1.2750 - 5	1.2057 - 4	4.3522 - 6
-11000	-11006	1157.9	3.9531	1.2719	1.2193	4.3399
-10500	-10505	1156.1	3.9435	1.2688	1.2330	4.3277
-10000	-10005	1154.2	3.9338	1.2657	1.2469	4.3154
-9500	-9504	1152.3	3.9241	1.2626	1.2610	4.3031
-9000	-9004	1150.5	3.9144	1.2594	1.2754	4.2908
-8500	-8503	1148.6	3.9047	1.2563	1.2899	4.2785
-8000	-8003	1146.7	3.8950	1.2532	1.3046	4.2662
-7500	-7503	1144.9	3.8853	1.2500	1.3196	4.2539
-7000	-7002	1143.0	3.8755	1.2469	1.3348	4.2415
-6500	-6502	1141.1	3.8657 - 7	1.2438 - 5	1.3501 - 4	4.2292 - 6
-6000	-6002	1139.2	3.8560	1.2406	1.3658	4.2168
-5500	-5501	1137.4	3.8462	1.2375	1.3816	4.2044
-5000	-5001	1135.5	3.8363	1.2343	1.3977	4.1921
-4500	-4501	1133.6	3.8265	1.2311	1.4140	4.1797
-4000	-4001	1131.7	3.8167	1.2280	1.4306	4.1673
-3500	-3501	1129.8	3.8068	1.2248	1.4474	4.1548
-3000	-3000	1127.9	3.7969	1.2216	1.4644	4.1424
-2500	-2500	1126.0	3.7870	1.2184	1.4818	4.1300
-2000	-2000	1124.1	3.7771	1.2152	1.4993	4.1175
-1500	-1500	1122.2	3.7672 - 7	1.2121 - 5	1.5172 - 4	4.1050 - 6
-1000	-1000	1120.3	3.7572	1.2089	1.5353	4.0926
-500	-500	1118.4	3.7473	1.2056	1.5537	4.0801
0	0	1116.4	3.7373	1.2024	1.5723	4.0676
500	500	1114.5	3.7273	1.1992	1.5913	4.0551
1000	1000	1112.6	3.7173	1.1960	1.6105	4.0425
1500	1500	1110.7	3.7073	1.1928	1.6301	4.0300
2000	2000	1108.7	3.6972	1.1896	1.6499	4.0175
2500	2500	1106.8	3.6872	1.1863	1.6700	4.0049
3000	3000	1104.9	3.6771	1.1831	1.6905	3.9923
3500	3499	1102.9	3.6670 - 7	1.1798 - 5	1.7113 - 4	3.9797 - 6
4000	3999	1101.0	3.6569	1.1766	1.7324	3.9672
4500	4499	1099.0	3.6468	1.1733	1.7538	3.9545
5000	4999	1097.1	3.6367	1.1701	1.7755	3.9419
5500	5499	1095.1	3.6265	1.1668	1.7977	3.9293
6000	5998	1093.2	3.6163	1.1635	1.8201	3.9167
6500	6498	1091.2	3.6061	1.1602	1.8429	3.9040
7000	6998	1089.3	3.5959	1.1570	1.8661	3.8913
7500	7497	1087.3	3.5857	1.1537	1.8897	3.8787
8000	7997	1085.3	3.5755	1.1504	1.9136	3.8660
8500	8497	1083.3	3.5652 - 7	1.1471 - 5	1.9379 - 4	3.8533 - 6
9000	8996	1081.4	3.5550	1.1438	1.9626	3.8406
9500	9496	1079.4	3.5447	1.1405	1.9877	3.8279
10000	9995	1077.4	3.5344	1.1371	2.0132	3.8151
10500	10495	1075.4	3.5240	1.1338	2.0392	3.8024
11000	10994	1073.4	3.5137	1.1305	2.0655	3.7896
11500	11494	1071.4	3.5033	1.1272	2.0923	3.7768
12000	11993	1069.4	3.4930	1.1238	2.1196	3.7641
12500	12493	1067.4	3.4826	1.1205	2.1472	3.7513
13000	12992	1065.4	3.4721	1.1171	2.1754	3.7385

ALTITUDE		SOUND SPEED	COEFFICIENT OF VISCOSITY		KIN. VISCOSITY	TECHNICAL CONDUCT.
Z, ft	H, ft	$C_s, \text{ft sec}^{-1}$	$\mu, \text{lb sec ft}^{-2}$	$\mu, \text{lb ft}^{-1} \text{sec}^{-1}$	$\nu, \text{ft}^2 \text{sec}^{-1}$	$k, \text{BTU ft}^{-1} \text{sec}^{-1} (^\circ\text{R})^{-1}$
13500	13491	1063.4	3.4617 - 7	1.1138 - 5	2.2040 - 4	3.7257 - 6
14000	13991	1061.4	3.4513	1.1104	2.2331	3.7128
14500	14490	1059.4	3.4408	1.1070	2.2627	3.7000
15000	14989	1057.4	3.4303	1.1037	2.2927	3.6871
15500	15488	1055.3	3.4198	1.1003	2.3233	3.6743
16000	15988	1053.3	3.4093	1.0969	2.3544	3.6614
16500	16487	1051.3	3.3988	1.0935	2.3861	3.6485
17000	16986	1049.2	3.3882	1.0901	2.4183	3.6356
17500	17485	1047.2	3.3776	1.0867	2.4510	3.6227
18000	17984	1045.1	3.3670	1.0833	2.4843	3.6098
18500	18484	1043.1	3.3564 - 7	1.0799 - 5	2.5182 - 4	3.5968 - 6
19000	18983	1041.0	3.3458	1.0765	2.5526	3.5839
19500	19482	1039.0	3.3351	1.0730	2.5877	3.5709
20000	19981	1036.9	3.3245	1.0696	2.6234	3.5580
20500	20480	1034.9	3.3138	1.0662	2.6597	3.5450
21000	20979	1032.8	3.3031	1.0627	2.6966	3.5320
21500	21478	1030.7	3.2923	1.0593	2.7342	3.5190
22000	21977	1028.6	3.2816	1.0558	2.7724	3.5060
22500	22476	1026.6	3.2708	1.0524	2.8114	3.4929
23000	22975	1024.5	3.2601	1.0489	2.8510	3.4799
23500	23474	1022.4	3.2492 - 7	1.0454 - 5	2.8914 - 4	3.4668 - 6
24000	23972	1020.3	3.2384	1.0419	2.9324	3.4538
24500	24471	1018.2	3.2276	1.0384	2.9743	3.4407
25000	24970	1016.1	3.2167	1.0350	3.0168	3.4276
25500	25469	1014.0	3.2058	1.0314	3.0602	3.4145
26000	25968	1011.9	3.1949	1.0279	3.1044	3.4014
26500	26466	1009.8	3.1840	1.0244	3.1493	3.3883
27000	26965	1007.7	3.1731	1.0209	3.1951	3.3751
27500	27464	1005.5	3.1621	1.0174	3.2417	3.3620
28000	27962	1003.4	3.1511	1.0139	3.2893	3.3488
28500	28461	1001.3	3.1401 - 7	1.0103 - 5	3.3377 - 4	3.3357 - 6
29000	28960	999.13	3.1291	1.0068	3.3870	3.3225
29500	29458	996.99	3.1181	1.0032	3.4372	3.3093
30000	29957	994.85	3.1070	9.9965 - 6	3.4884	3.2961
30500	30455	992.70	3.0959	9.9609	3.5405	3.2829
31000	30954	990.54	3.0848	9.9252	3.5937	3.2696
31500	31452	988.39	3.0737	9.8894	3.6478	3.2564
32000	31951	986.22	3.0626	9.8535	3.7030	3.2432
32500	32449	984.05	3.0514	9.8176	3.7593	3.2299
33000	32948	981.88	3.0402	9.7816	3.8167	3.2166
33500	33446	979.70	3.0290 - 7	9.7455 - 6	3.8751 - 4	3.2033 - 6
34000	33945	977.52	3.0178	9.7094	3.9348	3.1900
34500	34443	975.33	3.0065	9.6732	3.9955	3.1767
35000	34941	973.14	2.9953	9.6370	4.0575	3.1634
35500	35440	970.95	2.9840	9.6006	4.1207	3.1501
36000	35938	968.75	2.9727	9.5642	4.1852	3.1367
36500	36436	968.08	2.9612	9.5282	4.2507	3.1232
37000	36934	968.08	2.9692	9.5532	4.3174	3.1327
37500	37433	968.08	2.9692	9.5532	4.4855	3.1327
38000	37931	968.08	2.9692	9.5532	4.5942	3.1327
38500	38429	968.08	2.9692 - 7	9.5532 - 6	4.7055 - 4	3.1327 - 6
39000	38927	968.08	2.9692	9.5532	4.8196	3.1327
39500	39425	968.08	2.9692	9.5532	4.9363	3.1327
40000	39923	968.08	2.9692	9.5532	5.0560	3.1327
40500	40422	968.08	2.9692	9.5532	5.1784	3.1327
41000	40920	968.08	2.9692	9.5532	5.3039	3.1327
41500	41418	968.08	2.9692	9.5532	5.4324	3.1327
42000	41916	968.08	2.9692	9.5532	5.5640	3.1327
42500	42414	968.08	2.9692	9.5532	5.6988	3.1327
43000	42912	968.08	2.9692	9.5532	5.8368	3.1327

ALTITUDE		SOUND SPEED	COEFFICIENT OF VISCOSITY		KIN. VISCOSITY	THERMAL CONDUCT.
Z, ft	h, ft'	$C_s, \text{ft sec}^{-1}$	$\mu, \text{lb sec ft}^{-2}$	$\mu, \text{lb ft}^{-1} \text{sec}^{-1}$	$\eta, \text{ft}^2 \text{sec}^{-1}$	k, BTU ft ⁻¹ sec ⁻¹ (°R) ⁻¹
43500	43409	968.08	2.9692 - 7	9.5532 - 6	5.9782 - 4	3.1327 - 6
44000	43907	968.08	2.9692	9.5532	6.1230	3.1327
44500	44405	968.08	2.9692	9.5532	6.2713	3.1327
45000	44903	968.08	2.9692	9.5532	6.4231	3.1327
45500	45401	968.08	2.9692	9.5532	6.5787	3.1327
46000	45899	968.08	2.9692	9.5532	6.7380	3.1327
46500	46397	968.08	2.9692	9.5532	6.9011	3.1327
47000	46894	968.08	2.9692	9.5532	7.0682	3.1327
47500	47392	968.08	2.9692	9.5532	7.2394	3.1327
48000	47890	968.08	2.9692	9.5532	7.4146	3.1327
48500	48387	968.08	2.9692 - 7	9.5532 - 6	7.5941 - 4	3.1327 - 6
49000	48885	968.08	2.9692	9.5532	7.7780	3.1327
49500	49383	968.08	2.9692	9.5532	7.9663	3.1327
50000	49880	968.08	2.9692	9.5532	8.1591	3.1327
50500	50378	968.08	2.9692	9.5532	8.3566	3.1327
51000	50876	968.08	2.9692	9.5532	8.5588	3.1327
51500	51373	968.08	2.9692	9.5532	8.7660	3.1327
52000	51871	968.08	2.9692	9.5532	8.9781	3.1327
52500	52368	968.08	2.9692	9.5532	9.1954	3.1327
53000	52866	968.08	2.9692	9.5532	9.4179	3.1327
53500	53363	968.08	2.9692 - 7	9.5532 - 6	9.6458 - 4	3.1327 - 6
54000	53861	968.08	2.9692	9.5532	9.8792	3.1327
54500	54358	968.08	2.9692	9.5532	1.0118 - 3	3.1327
55000	54855	968.08	2.9692	9.5532	1.0363	3.1327
55500	55353	968.08	2.9692	9.5532	1.0614	3.1327
56000	55850	968.08	2.9692	9.5532	1.0871	3.1327
56500	56347	968.08	2.9692	9.5532	1.1133	3.1327
57000	56845	968.08	2.9692	9.5532	1.1403	3.1327
57500	57342	968.08	2.9692	9.5532	1.1679	3.1327
58000	57839	968.08	2.9692	9.5532	1.1961	3.1327
58500	58336	968.08	2.9692 - 7	9.5532 - 6	1.2250 - 3	3.1327 - 6
59000	58834	968.08	2.9692	9.5532	1.2547	3.1327
59500	59331	968.08	2.9692	9.5532	1.2850	3.1327
60000	59828	968.08	2.9692	9.5532	1.3161	3.1327
60500	60325	968.08	2.9692	9.5532	1.3479	3.1327
61000	60822	968.08	2.9692	9.5532	1.3805	3.1327
61500	61319	968.08	2.9692	9.5532	1.4139	3.1327
62000	61816	968.08	2.9692	9.5532	1.4481	3.1327
62500	62313	968.08	2.9692	9.5532	1.4831	3.1327
63000	62810	968.08	2.9692	9.5532	1.5189	3.1327
63500	63307	968.08	2.9692 - 7	9.5532 - 6	1.5556 - 3	3.1327 - 6
64000	63804	968.08	2.9692	9.5532	1.5932	3.1327
64500	64301	968.08	2.9692	9.5532	1.6318	3.1327
65000	64798	968.08	2.9692	9.5532	1.6712	3.1327
65500	65295	968.08	2.9692	9.5532	1.7116	3.1327
66000	65792	968.08	2.9692	9.5532	1.7530	3.1327
66500	66289	968.08	2.9692	9.5532	1.7953	3.1327
67000	66785	968.08	2.9692	9.5532	1.8387	3.1327
67500	67282	968.08	2.9692	9.5532	1.8831	3.1327
68000	67779	968.08	2.9692	9.5532	1.9286	3.1327
68500	68276	968.08	2.9692 - 7	9.5532 - 6	1.9752 - 3	3.1327 - 6
69000	68772	968.08	2.9692	9.5532	2.0230	3.1327
69500	69269	968.08	2.9692	9.5532	2.0718	3.1327
70000	69766	968.08	2.9692	9.5532	2.1219	3.1327
70500	70262	968.08	2.9692	9.5532	2.1732	3.1327
71000	70759	968.08	2.9692	9.5532	2.2257	3.1327
71500	71256	968.08	2.9692	9.5532	2.2794	3.1327
72000	71752	968.08	2.9692	9.5532	2.3345	3.1327
72500	72249	968.08	2.9692	9.5532	2.3909	3.1327
73000	72745	968.08	2.9692	9.5532	2.4486	3.1327

ALTITUDE		SOUND SPEED	COEFFICIENT OF VISCOSITY		KIN. VISCOSITY	WATER THERMAL CONDUCT.
Z, ft	H, ft	$C_s, \text{ft sec}^{-1}$	$\mu, \text{lb/ft}^2 \text{sec}^{-1}$	$\mu, \text{lb ft}^{-1} \text{sec}^{-1}$	$\eta, \text{ft}^2 \text{sec}^{-1}$	$k, \text{BTU ft}^{-1} \text{sec}^{-1} (^\circ\text{R})^{-1}$
73500	73242	968.08	2.9692 - 7	9.5532 - 6	2.5077 - 3	3.1327 - 6
74000	73738	968.08	2.9692	9.5532	2.5683	3.1327
74500	74235	968.08	2.9692	9.5532	2.6303	3.1327
75000	74731	968.08	2.9692	9.5532	2.6938	3.1327
75500	75228	968.08	2.9692	9.5532	2.7589	3.1327
76000	75724	968.08	2.9692	9.5532	2.8255	3.1327
76500	76220	968.08	2.9692	9.5532	2.8937	3.1327
77000	76717	968.08	2.9692	9.5532	2.9636	3.1327
77500	77213	968.08	2.9692	9.5532	3.0351	3.1327
78000	77709	968.08	2.9692	9.5532	3.1084	3.1327
78500	78206	968.08	2.9692 - 7	9.5532 - 6	3.1834 - 3	3.1327 - 6
79000	78702	968.08	2.9692	9.5532	3.2603	3.1327
79500	79198	968.08	2.9692	9.5532	3.3390	3.1327
80000	79694	968.08	2.9692	9.5532	3.4195	3.1327
80500	80190	968.08	2.9692	9.5532	3.5021	3.1327
81000	80687	968.08	2.9692	9.5532	3.5866	3.1327
81500	81183	968.08	2.9692	9.5532	3.6731	3.1327
82000	81679	968.08	2.9692	9.5532	3.7618	3.1327
82500	82175	968.39	2.9708	9.5584	3.8571	3.1346
83000	82671	969.40	2.9760	9.5751	3.9652	3.1407
83500	83167	970.41	2.9812 - 7	9.5918 - 6	4.0761 - 3	3.1468 - 6
84000	83663	971.42	2.9864	9.6085	4.1899	3.1530
84500	84159	972.43	2.9916	9.6252	4.3065	3.1591
85000	84655	973.44	2.9968	9.6419	4.4262	3.1652
85500	85151	974.45	3.0020	9.6586	4.5489	3.1713
86000	85647	975.45	3.0071	9.6752	4.6747	3.1774
86500	86143	976.46	3.0123	9.6918	4.8037	3.1836
87000	86639	977.46	3.0175	9.7085	4.9360	3.1897
87500	87134	978.47	3.0226	9.7250	5.0717	3.1958
88000	87630	979.47	3.0278	9.7416	5.2108	3.2019
88500	88126	980.47	3.0329 - 7	9.7582 - 6	5.3533 - 3	3.2080 - 6
89000	88622	981.47	3.0381	9.7747	5.4995	3.2141
89500	89118	982.47	3.0432	9.7913	5.6494	3.2202
90000	89613	983.46	3.0484	9.8078	5.8030	3.2263
90500	90109	984.46	3.0535	9.8243	5.9604	3.2324
91000	90605	985.45	3.0586	9.8408	6.1218	3.2385
91500	91100	986.45	3.0637	9.8573	6.2871	3.2445
92000	91596	987.44	3.0688	9.8737	6.4566	3.2506
92500	92092	988.43	3.0740	9.8902	6.6303	3.2567
93000	92587	989.43	3.0791	9.9066	6.8083	3.2628
93500	93083	990.42	3.0842 - 7	9.9230 - 6	6.9907 - 3	3.2689 - 6
94000	93578	991.40	3.0893	9.9394	7.1775	3.2749
94500	94074	992.39	3.0944	9.9558	7.3690	3.2810
95000	94569	993.38	3.0994	9.9722	7.5651	3.2871
95500	95065	994.37	3.1045	9.9885	7.7661	3.2931
96000	95560	995.35	3.1096	1.0005 - 5	7.9719	3.2992
96500	96056	996.33	3.1147	1.0021	8.1828	3.3052
97000	96551	997.32	3.1197	1.0037	8.3988	3.3113
97500	97046	998.30	3.1248	1.0054	8.6200	3.3173
98000	97542	999.28	3.1299	1.0070	8.8466	3.3234
98500	98037	1000.3	3.1349 - 7	1.0086 - 5	9.0787 - 3	3.3294 - 6
99000	98532	1001.2	3.1400	1.0103	9.3164	3.3355
99500	99028	1002.2	3.1450	1.0119	9.5598	3.3415
100000	99523	1003.2	3.1501	1.0135	9.8090	3.3475
100500	100018	1004.2	3.1551	1.0151	1.0064 - 2	3.3536
101000	100513	1005.1	3.1601	1.0167	1.0326	3.3596
101500	101008	1006.1	3.1652	1.0184	1.0593	3.3656
102000	101504	1007.1	3.1702	1.0200	1.0867	3.3717
102500	101999	1008.1	3.1752	1.0216	1.1147	3.3777
103000	102494	1009.0	3.1802	1.0232	1.1435	3.3837

ALTITUDE		SOUND SPEED	COEFFICIENT OF VISCOSITY		KIN. VISCOSITY	THERMAL CONDUCT.
Z, ft	H, ft	C _s , ft sec ⁻¹	μ, lb/sec ft ⁻²	μ, lb ft ⁻¹ sec ⁻¹	η, ft ² sec ⁻¹	k, BTU ft ⁻¹ sec ⁻¹ (°R) ⁻¹
103500	102989	1010.0	3.1852 - 7	1.0248 - 5	1.1728 - 2	3.3897 - 6
104000	103484	1011.0	3.1902	1.0264	1.2029	3.3957
104500	103979	1011.9	3.1952	1.0280	1.2337	3.4017
105000	104474	1012.9	3.2002	1.0296	1.2652	3.4077
106000	105464	1014.8	3.2102	1.0329	1.3305	3.4198
107000	106454	1016.8	3.2202	1.0361	1.3989	3.4318
108000	107444	1018.7	3.2301	1.0393	1.4705	3.4437
109000	108433	1020.6	3.2400	1.0424	1.5454	3.4557
110000	109423	1022.5	3.2499	1.0456	1.6238	3.4677
111000	110412	1024.4	3.2598	1.0488	1.7059	3.4796
112000	111402	1026.3	3.2697 - 7	1.0520 - 5	1.7919 - 2	3.4915 - 6
113000	112391	1028.2	3.2795	1.0552	1.8817	3.5035
114000	113380	1030.1	3.2894	1.0583	1.9757	3.5154
115000	114369	1032.0	3.2992	1.0615	2.0741	3.5273
116000	115358	1033.9	3.3090	1.0646	2.1769	3.5392
117000	116347	1035.8	3.3188	1.0678	2.2844	3.5511
118000	117336	1037.7	3.3285	1.0709	2.3967	3.5629
119000	118325	1039.6	3.3383	1.0741	2.5142	3.5748
120000	119313	1041.5	3.3480	1.0772	2.6369	3.5866
121000	120302	1043.4	3.3577	1.0803	2.7651	3.5985
122000	121290	1045.2	3.3674 - 7	1.0834 - 5	2.8990 - 2	3.6103 - 6
123000	122279	1047.1	3.3771	1.0866	3.0389	3.6221
124000	123267	1049.0	3.3868	1.0897	3.1849	3.6339
125000	124255	1050.8	3.3964	1.0928	3.3374	3.6457
126000	125243	1052.7	3.4061	1.0959	3.4966	3.6575
127000	126231	1054.5	3.4157	1.0990	3.6628	3.6692
128000	127219	1056.4	3.4253	1.1021	3.8362	3.6810
129000	128207	1058.2	3.4349	1.1051	4.0172	3.6927
130000	129195	1060.1	3.4444	1.1082	4.2059	3.7044
131000	130182	1061.9	3.4540	1.1113	4.4029	3.7162
132000	131170	1063.8	3.4635 - 7	1.1144 - 5	4.6082 - 2	3.7279 - 6
133000	132157	1065.6	3.4730	1.1174	4.8224	3.7396
134000	133145	1067.4	3.4825	1.1205	5.0457	3.7512
135000	134132	1069.2	3.4920	1.1235	5.2785	3.7629
136000	135119	1071.1	3.5015	1.1266	5.5211	3.7746
137000	136106	1072.9	3.5109	1.1296	5.7740	3.7862
138000	137093	1074.7	3.5204	1.1326	6.0375	3.7979
139000	138080	1076.5	3.5298	1.1357	6.3120	3.8095
140000	139066	1078.3	3.5392	1.1387	6.5980	3.8211
141000	140053	1080.1	3.5486	1.1417	6.8959	3.8327
142000	141040	1081.9	3.5580 - 7	1.1447 - 5	7.2061 - 2	3.8443 - 6
143000	142026	1083.7	3.5673	1.1478	7.5291	3.8559
144000	143013	1085.5	3.5767	1.1508	7.8654	3.8674
145000	143999	1087.3	3.5860	1.1538	8.2155	3.8790
146000	144985	1089.1	3.5953	1.1568	8.5799	3.8906
147000	145971	1090.9	3.6046	1.1597	8.9591	3.9021
148000	146957	1092.7	3.6139	1.1627	9.3537	3.9136
149000	147943	1094.5	3.6231	1.1657	9.7642	3.9251
150000	148929	1096.3	3.6324	1.1687	1.0191 - 1	3.9366
151000	149915	1098.0	3.6416	1.1717	1.0635	3.9481
152000	150900	1099.8	3.6509 - 7	1.1746 - 5	1.1097 - 1	3.9596 - 6
153000	151886	1101.6	3.6601	1.1776	1.1578	3.9711
154000	152871	1103.4	3.6693	1.1805	1.2077	3.9825
155000	153856	1105.1	3.6784	1.1835	1.2596	3.9940
156000	154842	1105.7	3.6816	1.1845	1.3088	3.9980
157000	155827	1105.7	3.6816	1.1845	1.3572	3.9980
158000	156812	1105.7	3.6816	1.1845	1.4073	3.9980
159000	157797	1105.7	3.6816	1.1845	1.4593	3.9980
160000	158782	1105.7	3.6816	1.1845	1.5133	3.9980
161000	159767	1105.7	3.6816	1.1845	1.5692	3.9980

ALTITUDE		SOUND SPEED	COEFFICIENT OF VISCOSITY		KIN. VISCOSITY	THERMAL CONDUCT.
Z, ft	H, ft'	$C_s, \text{ft sec}^{-1}$	$\mu, \text{lb/sec ft}^2$	$\mu, \text{lb ft}^{-1} \text{sec}^{-1}$	$\eta, \text{ft}^2 \text{sec}^{-1}$	k, BTU ft ⁻¹ sec ⁻¹ (°R) ⁻¹
162000	160751	1105.7	3.6816 - 7	1.1845 - 5	1.6271 - 1	3.9980 - 6
163000	161736	1105.7	3.6816	1.1845	1.6872	3.9980
164000	162720	1105.7	3.6816	1.1845	1.7496	3.9980
165000	163705	1105.7	3.6816	1.1845	1.8142	3.9980
166000	164689	1105.7	3.6816	1.1845	1.8812	3.9980
167000	165673	1105.7	3.6816	1.1845	1.9506	3.9980
168000	166657	1105.7	3.6816	1.1845	2.0227	3.9980
169000	167641	1105.7	3.6816	1.1845	2.0973	3.9980
170000	168625	1105.7	3.6816	1.1845	2.1748	3.9980
171000	169609	1105.7	3.6816	1.1845	2.2550	3.9980
172000	170593	1105.7	3.6816 - 7	1.1845 - 5	2.3383 - 1	3.9980 - 6
173000	171577	1105.7	3.6816	1.1845	2.4245	3.9980
174000	172560	1105.7	3.6816	1.1845	2.5140	3.9980
175000	173544	1105.7	3.6816	1.1845	2.6068	3.9980
176000	174527	1104.0	3.6726	1.1816	2.6880	3.9868
177000	175510	1101.4	3.6589	1.1772	2.7640	3.9696
178000	176494	1098.7	3.6451	1.1728	2.8425	3.9524
179000	177477	1096.1	3.6313	1.1683	2.9236	3.9353
180000	178460	1093.4	3.6175	1.1639	3.0074	3.9180
181000	179443	1090.7	3.6036	1.1594	3.0940	3.9008
182000	180425	1088.0	3.5897 - 7	1.1549 - 5	3.1836 - 1	3.8836 - 6
183000	181408	1085.4	3.5757	1.1505	3.2761	3.8663
184000	182391	1082.7	3.5618	1.1460	3.3718	3.8490
185000	183373	1080.0	3.5478	1.1415	3.4708	3.8317
186000	184356	1077.3	3.5337	1.1369	3.5731	3.8143
187000	185338	1074.6	3.5197	1.1324	3.6790	3.7970
188000	186320	1071.9	3.5056	1.1279	3.7885	3.7796
189000	187303	1069.1	3.4914	1.1233	3.9019	3.7622
190000	188285	1066.4	3.4773	1.1188	4.0192	3.7448
191000	189267	1063.7	3.4631	1.1142	4.1407	3.7273
192000	190248	1060.9	3.4489 - 7	1.1096 - 5	4.2664 - 1	3.7099 - 6
193000	191230	1058.2	3.4346	1.1051	4.3966	3.6924
194000	192212	1055.4	3.4203	1.1005	4.5314	3.6749
195000	193194	1052.7	3.4060	1.0958	4.6711	3.6574
196000	194175	1049.9	3.3916	1.0912	4.8158	3.6398
197000	195157	1047.1	3.3772	1.0866	4.9658	3.6222
198000	196138	1044.3	3.3628	1.0820	5.1212	3.6046
199000	197119	1041.5	3.3484	1.0773	5.2823	3.5870
200000	198100	1038.7	3.3339	1.0726	5.4493	3.5694
201000	199081	1035.9	3.3193	1.0680	5.6225	3.5517
202000	200062	1033.1	3.3048 - 7	1.0633 - 5	5.8022 - 1	3.5341 - 6
203000	201043	1030.3	3.2902	1.0586	5.9885	3.5164
204000	202024	1027.5	3.2756	1.0539	6.1819	3.4986
205000	203004	1024.6	3.2609	1.0492	6.3825	3.4809
206000	203985	1021.8	3.2462	1.0444	6.5903	3.4631
207000	204966	1018.9	3.2314	1.0397	6.8070	3.4454
208000	205946	1016.1	3.2167	1.0349	7.0316	3.4276
209000	206926	1013.2	3.2019	1.0302	7.2648	3.4097
210000	207906	1010.3	3.1870	1.0254	7.5070	3.3919
211000	208887	1007.5	3.1721	1.0206	7.7587	3.3740
212000	209867	1004.6	3.1572 - 7	1.0158 - 5	8.0203 - 1	3.3561 - 6
213000	210847	1001.7	3.1423	1.0110	8.2922	3.3382
214000	211826	998.77	3.1273	1.0062	8.5749	3.3203
215000	212806	995.86	3.1122	1.0013	8.8688	3.3023
216000	213786	992.94	3.0972	9.9649 - 6	9.1746	3.2843
217000	214765	990.01	3.0821	9.9163	9.4927	3.2663
218000	215745	987.07	3.0669	9.8675	9.8237	3.2483
219000	216724	984.12	3.0517	9.8187	1.0168 + 0	3.2303
220000	217703	981.16	3.0365	9.7697	1.0527	3.2122
221000	218683	978.20	3.0213	9.7206	1.0700	3.1942

ALTITUDE		SOUND SPEED	COEFFICIENT OF VISCOSITY		KIN. VISCOSITY	THERMAL CONDUCT.
Z, ft	H, ft	$C_s, \text{ft sec}^{-1}$	$\mu, \text{lb/ft}^2 \text{sec}^{-1}$	$\mu, \text{lb/ft}^2 \text{sec}^{-1}$	$\eta, \text{ft}^2 \text{sec}^{-1}$	$k, \text{BTU ft}^{-1} \text{sec}^{-1} (^\circ\text{R})^{-1}$
222000	219662	975.23	3.0060 - 7	9.6714 - 6	1.1289 + 0	3.1761 - 6
223000	220641	972.24	2.9906	9.6221	1.1695	3.1579
224000	221620	969.25	2.9753	9.5726	1.2117	3.1398
225000	222598	966.25	2.9598	9.5230	1.2557	3.1216
226000	223577	963.24	2.9444	9.4733	1.3016	3.1034
227000	224556	960.22	2.9289	9.4234	1.3494	3.0852
228000	225534	957.20	2.9134	9.3735	1.3994	3.0670
229000	226513	954.16	2.8978	9.3233	1.4514	3.0488
230000	227491	951.11	2.8822	9.2731	1.5058	3.0305
231000	228469	948.06	2.8665	9.2227	1.5625	3.0122
232000	229447	944.99	2.8508 - 7	9.1722 - 6	1.6218 + 0	2.9939 - 6
233000	230426	941.91	2.8351	9.1216	1.6836	2.9756
234000	231404	938.83	2.8193	9.0708	1.7483	2.9572
235000	232381	935.73	2.8035	9.0199	1.8158	2.9389
236000	233359	932.63	2.7876	8.9689	1.8864	2.9205
237000	234337	929.51	2.7717	8.9177	1.9602	2.9021
238000	235315	926.39	2.7558	8.8664	2.0374	2.8836
239000	236292	923.25	2.7398	8.8149	2.1182	2.8652
240000	237269	920.11	2.7237	8.7634	2.2028	2.8467
241000	238247	916.95	2.7077	8.7116	2.2912	2.8282
242000	239224	913.78	2.6915 - 7	8.6598 - 6	2.3839 + 0	2.8097 - 6
243000	240201	910.61	2.6754	8.6077	2.4809	2.7912
244000	241178	907.42	2.6592	8.5556	2.5826	2.7726
245000	242155	904.22	2.6429	8.5033	2.6892	2.7541
246000	243132	901.0	2.627	8.451	2.801	2.735
247000	244109	897.8	2.610	8.398	2.918	2.717
248000	245085	894.6	2.594	8.346	3.041	2.698
249000	246062	891.3	2.577	8.293	3.170	2.680
250000	247039	888.1	2.561	8.240	3.306	2.661
251000	248015	884.8	2.544	8.187	3.448	2.642
252000	248991	881.5	2.528 - 7	8.133 - 6	3.597 + 0	2.624 - 6
253000	249967	878.2	2.511	8.080	3.754	2.605
254000	250944	874.9	2.495	8.026	3.919	2.586
255000	251920	871.6	2.478	7.972	4.093	2.567
256000	252896	868.3	2.461	7.918	4.275	2.549
257000	253871	864.9	2.444	7.864	4.468	2.530
258000	254847	861.6	2.427	7.810	4.670	2.511
259000	255823	858.2	2.411	7.756	4.883	2.492
260000	256798	854.8	2.394	7.701	5.108	2.473
261000	257774	851.4	2.377	7.647	5.344	2.455
262000	258749	848.0	2.360 - 7	7.592 - 6	5.594 + 0	2.436 - 6
263000	259725	846.5	2.352	7.567	5.906	2.427
264000	260700	846.5	2.352	7.567	6.280	2.427
265000	261675	846.5	2.352	7.567	6.677	2.427
266000	262650	846.5	2.352	7.567	7.099	2.427
267000	263625	846.5	2.352	7.567	7.547	2.427
268000	264600	846.5	2.352	7.567	8.024	2.427
269000	265574	846.5	2.352	7.567	8.531	2.427
270000	266549	846.5	2.352	7.567	9.071	2.427
271000	267524	846.5	2.352	7.567	9.644	2.427
272000	268498	846.5	2.352 - 7	7.567 - 6	1.025 + 1	2.427 - 6
273000	269472	846.5	2.352	7.567	1.090	2.427
274000	270447	846.5	2.352	7.567	1.159	2.427
275000	271421	846.5	2.352	7.567	1.232	2.427
276000	272395	846.5	2.352	7.567	1.310	2.427
277000	273369	846.5	2.352	7.567	1.393	2.427
278000	274343	846.5	2.352	7.567	1.480	2.427
279000	275317	846.5	2.352	7.567	1.574	2.427
280000	276290	846.5	2.352	7.567	1.673	2.427
281000	277264	846.5	2.352	7.567	1.779	2.427

ALTITUDE		SOUND SPEED	COEFFICIENT OF VISCOSITY		KIN. VISCOSITY		THERMAL CONDUCT.
Z, ft	H, ft	$C_s, \text{ft sec}^{-1}$	$\mu, \text{lb/sec ft}^{-2}$	$\mu, \text{lb ft}^{-1} \text{sec}^{-1}$	$\eta, \text{ft}^2 \text{sec}^{-1}$	$k, \text{BTU ft}^{-1} \text{sec}^{-1} (^\circ\text{R})^{-1}$	
282000	278238	846.5	2.352 - 7	7.567 - 6	1.891 + 1	2.427 - 6	
283000	279211	846.5	2.352	7.567	2.010	2.427	
284000	280184	846.5	2.352	7.567	2.137	2.427	
285000	281158	846.5	2.352	7.567	2.272	2.427	
286000	282131	846.5	2.352	7.567	2.416	2.427	
287000	283104	846.5	2.352	7.567	2.568	2.427	
288000	284077	846.5	2.352	7.567	2.730	2.427	
289000	285050	846.5	2.352	7.567	2.902	2.427	
290000	286023	846.5	2.352	7.567	3.085	2.427	
291000	286995	846.5	2.352	7.567	3.280	2.427	
292000	287968	846.5	2.352 - 7	7.567 - 6	3.486 + 1	2.427 - 6	
293000	288940	846.5	2.352	7.567	3.706	2.427	
294000	289913	846.5	2.352	7.567	3.940	2.427	
295000	290885	846.5	2.352	7.567	4.188	2.427	

5. SEA-LEVEL VALUES OF ATMOSPHERIC PROPERTIES

5.1 Metric Units

The sea-level values of the properties tabulated in this model in metric units are given in the following table:

Collision frequency	(ν_0) $6.9204049 \times 10^9 \text{ sec}^{-1}$
Conductivity, thermal	(k_0) $2.5339053 \times 10^{-2} \text{ joule m}^{-1} \text{ sec}^{-1} (\text{°K})^{-1}$
Conductivity, thermal	(k_0) $6.0532182 \times 10^{-6} \text{ kg-cal m}^{-1} \text{ sec}^{-1} (\text{°K})^{-1}$
Conductivity, thermal	(k_0) $2.5838643 \times 10^{-3} \text{ kgf sec}^{-1} (\text{°K})^{-1}$
Density, mass	(ρ_0) $1.2250140 \text{ kg m}^{-3}$
Density, mass	(ρ_0) $0.12491666 \text{ kgf sec}^2 \text{ m}^{-4}$
Gravitational acceleration	(g_0) $9.80665 \text{ m sec}^{-2}$
Kinematic viscosity	(η_0) $1.4607413 \times 10^{-5} \text{ m}^2 \text{ sec}^{-1}$
Mean free path	(L_0) $6.6317223 \times 10^{-8} \text{ m}$
Molar volume	(v_0) $23.645444 \text{ m}^3 (\text{kg-mol})^{-1}$
Molar volume	(v_0) $231.88259 \text{ m}^3 [(\text{kgf sec}^2 \text{ m}^{-1})^{-1} \text{ mol}]$
Molecular weight	(M_0) $28.966 \text{ (dimensionless)}$
Number density	(n_0) $2.5475521 \times 10^{25} \text{ m}^{-3}$
Particle speed	(\bar{v}_0) $458.94204 \text{ m sec}^{-1}$
Pressure	(P_0) 0.760 m Hg
Pressure	(P_0) 1013.2500 mb
Pressure	(P_0) $101,325.00 \text{ nt m}^{-2}$
Pressure	(P_0) $10,332.275 \text{ kgf m}^{-2}$
Scale height	(H_{s0}) 8434.4134 m
Sound speed	(C_{s0}) $340.29205 \text{ m sec}^{-1}$
Specific weight	(ω_0) $12.013284 \text{ kg m}^{-2} \text{ sec}^{-2}$
Specific weight	(ω_0) $1.2250140 \text{ kgf m}^{-3}$
Temperature	(t_0) 15.0°C
Temperature, absolute	(T_0) 288.16°K
Temperature, molecular scale	(T_{M0}) 288.16°K
Viscosity, coefficient of	(μ_0) $1.7894285 \times 10^{-5} \text{ kg m}^{-1} \text{ sec}^{-1}$
Viscosity, coefficient of	(μ_0) $1.8247093 \times 10^{-6} \text{ kgf sec m}^{-2}$

5.2 English Units

The sea-level values of the properties tabulated in this model in English units are given in the following table:

Collision frequency	(ν_0) $6.9204049 \times 10^9 \text{ sec}^{-1}$
Conductivity, thermal	(k_0) $3.1646925 \times 10^{-3} \text{ lb f sec}^{-1} (\text{°R})^{-1}$
Conductivity, thermal	(k_0) $1.0182097 \times 10^{-1} \text{ lb ft sec}^{-3} (\text{°R})^{-1}$
Conductivity, thermal	(k_0) $4.0675755 \times 10^{-6} \text{ BTU ft}^{-1} \text{ sec}^{-1} (\text{°R})^{-1}$
Conductivity, thermal	(k_0) $1.7571926 \times 10^{-1} \text{ BTU in ft}^{-2} \text{ hr}^{-1} (\text{°R})^{-1}$
Density, mass	(ρ_0) $0.0023769200 \text{ slugs ft}^{-3} (\text{lb f sec}^2 \text{ ft}^{-4})$
Density, mass	(ρ_0) $0.076475137 \text{ lb ft}^{-3}$
Gravitational acceleration	(g_0) $32.174049 \text{ ft sec}^{-2}$
Kinematic viscosity	(η_0) $1.5723288 \times 10^{-4} \text{ ft}^2 \text{ sec}^{-1}$
Mean free path	(L_0) $2.1757619 \times 10^{-7} \text{ ft}$
Molar volume	(v_0) $378.76362 \text{ ft}^3 (\text{lb-mol})^{-1}$
Molar volume	(v_0) $12,186.359 \text{ ft}^3 (\text{slug-mol})^{-1}$
Molecular weight	(M_0) $28.966 \text{ (dimensionless)}$
Number density	(n_0) $7.2138641 \times 10^{23} \text{ ft}^{-3}$
Particle speed	(\bar{V}_0) $1505.7153 \text{ ft sec}^{-1}$
Pressure	(P_0) 29.921260 in Hg
Pressure	(P_0) 1013.25 mb
Pressure	(P_0) $2118.2170 \text{ lb f ft}^{-2}$
Pressure	(P_0) $68087.267 \text{ pdl ft}^{-2}$
Scale height	(H_{s_0}) 27671.960 ft
Sound speed	(C_{s_0}) $1116.4437 \text{ ft sec}^{-1}$
Specific weight	(ω_0) $0.076475137 \text{ lb f ft}^{-3}$
Specific weight	(ω_0) $2.4605148 \text{ lb ft}^{-2} \text{ sec}^{-2}$
Temperature	(t_0) 59.0°F
Temperature, absolute	(T_0) 518.688°R
Temperature, molecular scale	(T_{M_0}) 518.688°R
Viscosity, coefficient of	(μ_0) $3.7372998 \times 10^{-7} \text{ lb f sec ft}^{-2}$
Viscosity, coefficient of	(μ_0) $1.2024406 \times 10^{-5} \text{ lb ft}^{-1} \text{ sec}^{-1}$

6. ICE-POINT VALUES OF SOME ATMOSPHERIC PROPERTIES
BASED ON $P_i = P_0$

n_i	$2.6874455 \times 10^{25} \text{ m}^{-3}$	$2.6874455 \times 10^{19} \text{ cm}^{-3}$
v_i	$22.414594 \text{ m}^3 (\text{kg-mol})^{-1}$	$22414.594 \text{ cm}^3 (\text{gm-mol})^{-1}$
ρ_i	$1.2922830 \text{ kg m}^{-3}$	$1.2922830 \times 10^{-3} \text{ gm cm}^{-3}$

7. PHYSICAL CONSTANTS

Defined, independent physical constants adopted as being exact for the computation of the tables are:

	<u>mks absolute units</u>	<u>cgs units</u>
G	$= 9.80665 \text{ m}^2 \text{ sec}^{-2} \text{ m}^{-1}$	$980.665 \text{ cm}^2 \text{ sec}^{-2} \text{ cm}^{-1}$
g_0	$= 9.80665 \text{ m sec}^{-2}$	$980.665 \text{ cm sec}^{-2}$
M_0	$= 28.966 \text{ (dimensionless)}$	$28.966 \text{ (dimensionless)}$
N	$= 6.02380 \times 10^{26} (\text{kg-mol})^{-1}$	$6.02380 \times 10^{23} (\text{gm-mol})^{-1}$
P_0	$= 1.013250 \times 10^5 \text{ newton m}^{-2}$ or 0.76 m Hg	$1.013250 \times 10^6 \text{ dynes cm}^{-2}$ or 76.0 cm Hg
R^*	$= 8.31439 \times 10^3 \text{ joules } (^{\circ}\text{K})^{-1} \text{ kg}^{-1}$	$8.31439 \times 10^7 \text{ ergs } (^{\circ}\text{K})^{-1} \text{ gm}^{-1}$
S	$= 110.4^{\circ}\text{K}$	110.4°K
T_i	$= 273.16^{\circ}\text{K}$	273.16°K
t_0	$= 15^{\circ}\text{C}$	15°C
β	$= 1.458 \times 10^{-6} \text{ kg sec}^{-1} \text{ m}^{-1} (^{\circ}\text{K})^{-1/2}$	$1.458 \times 10^{-5} \text{ gm sec}^{-1} \text{ cm}^{-1} (^{\circ}\text{K})^{-1/2}$ or poise $(^{\circ}\text{K})^{-1/2}$
γ	$= 1.4 \text{ (dimensionless)}$	$1.4 \text{ (dimensionless)}$
σ	$= 3.65 \times 10^{-10} \text{ m}$	$3.65 \times 10^{-8} \text{ cm}$

8. CONVERSION FACTORS

The defined and derived conversion factors for transformation to units and scales used for this model are:

8.1 Metric to English Conversions of Units of Length, Mass, and Geopotential

a. Defined relations (the constants are adopted as being exact).

1 foot	= 0.3048 meter
1 (i n mi)	= 1852 meters
1 pound	= 0.4535923 kilogram
1 standard geopotential foot	= 0.3048 standard geopotential meter

b. Derived relations

1 meter	= 3.280839895 + feet
1 meter	= $5.399568035 \times 10^{-4}$ (1 n mi)
1 kilogram	= 2.204622962 + pounds
1 (i n mi)	= 6,076.115486- feet
1 foot	= $1.645788336 \times 10^{-4}$ + (1 n mi)
1 standard geopotential meter	= 3.280839895 + standard geopotential feet

8.2 Metric to English and Absolute to Nonabsolute Conversions of Temperature Units

a. Defined

$$t(^{\circ}\text{C}) = T(^{\circ}\text{K}) - T_i(^{\circ}\text{K}), \text{ where } T_i(^{\circ}\text{K}) = 273.16^{\circ}\text{K}$$

$$T(^{\circ}\text{R}) = 1.8 T(^{\circ}\text{K})$$

$$t(^{\circ}\text{F}) - t_i(^{\circ}\text{F}) = T(^{\circ}\text{R}) - T_i(^{\circ}\text{R}), \text{ where } t_i(^{\circ}\text{F}) = 32(^{\circ}\text{F})$$

b. Derived relations

$$t_i(^{\circ}\text{C}) = 0^{\circ}\text{C}$$

$$T_i(^{\circ}\text{R}) = 491.688^{\circ}\text{R}$$

$$t(^{\circ}\text{C}) = [T(^{\circ}\text{R}) - T_i(^{\circ}\text{R})]/1.8 = [t(^{\circ}\text{F}) - t_i(^{\circ}\text{F})]/1.8$$

$$T(^{\circ}\text{R}) = 1.8[t(^{\circ}\text{C}) + 273.16(^{\circ}\text{C})] = [t(^{\circ}\text{F}) - t_i(^{\circ}\text{F})] + 491.688^{\circ}\text{R}$$

$$t(^{\circ}\text{F}) - 32^{\circ}\text{F} = 1.8t(^{\circ}\text{C}) = 1.8[T(^{\circ}\text{K}) - 273.16(^{\circ}\text{K})]$$

8.3 Absolute Systems of Units to Absolute-Force, Gravitational System of Units, Metric - English

a. Defined

$$1 \text{ force unit} = 1 \text{ mass unit} \times g_0$$

b. Derived relations

$$1 \text{ kgf} = 9.80665 \text{ kg m sec}^{-2}$$

$$1 \text{ kg} = \frac{1}{9.80665} \text{ kgf sec}^2 \text{ m}^{-1} = 0.1019716212 \text{ kgf sec}^2 \text{ m}^{-1}$$

$$1 \text{ lbf} = 0.4535923 \text{ kgf}$$

$$1 \text{ lbf} = 32.17404855 \text{ lb ft sec}^{-2}$$

$$1 \text{ lb} = 0.03108095017 \text{ lbf sec}^2 \text{ ft}^{-1}$$

$$= 0.03108095017 \text{ slugs}$$

$$1 \text{ slug} = 32.17404855 \text{ lb}$$

8.4 Thermal to Mechanical Units, Metric - English

a. Defined relations

$$1 \text{ kg-cal} = 1/860 \text{ kilowatt-hours (exact)}$$

$$1 \text{ kg-cal} \approx 1 \text{ kg } ^\circ\text{C}$$

$$1 \text{ kg-cal} = \frac{1.8}{0.4535923} \text{ BTU} = 3.968321331 \text{ BTU}$$

$$1 \text{ BTU} \approx 1 \text{ lb } ^\circ\text{F}$$

$$1 \text{ joule} = 1 \text{ watt sec}$$

b. Derived relations

$$1 \text{ kwhr} = 3.6 \times 10^6 \text{ watt sec} = 3.6 \times 10^6 \text{ joules}$$

$$1 \text{ kg-cal} = \frac{3.6 \times 10^6}{860} \text{ joules} = 4,186.046511 \text{ joules}$$

$$= 4,186.046511 \text{ kg m}^2 \text{ sec}^{-2}$$

✓ The precise value of the mechanical equivalent of heat depends on the particular temperature interval used in the definition of the calorie or BTU. To avoid confusion, an International Commission has agreed to define 1 kg-cal as exactly 1/860 kilowatt-hour. Consequently, the relationships 1 kg-cal \approx 1 kg $^\circ\text{C}$ and 1 BTU = 1 lb $^\circ\text{F}$ are no longer exact except at a particular temperature T. The kg-cal and the BTU may be arbitrarily related, however, at all temperatures, through their exact relation at temperature T.

$$1 \text{ kg-cal} = \frac{3.6 \times 10^6}{860 \times 9.80665} \text{ m kgf} = 426.8579495 \text{ m kgf}$$

$$1 \text{ kg-cal} = \frac{3.6 \times 10^6}{860 \times 9.80665 \times 0.4535923 \times 0.3048} \text{ ft lbf}$$

$$= 3087.469937 \text{ ft lbf}$$

$$1 \text{ BTU} = \frac{0.4535923}{1.8} \text{ kg-cal} = 0.2519957222 \text{ kg-cal}$$

$$1 \text{ BTU} = \frac{3.6 \times 10^6}{860 \times 0.3048 \times 9.80665 \times 1.8} \text{ ft lbf}$$

$$= 778.0292165 \text{ ft lbf}$$

$$1 \text{ BTU} = \frac{3.6 \times 10^6}{860 \times (0.3048)^2 \times 1.8} \text{ lb ft}^2 \text{ sec}^{-2}$$

$$= 25032.34980 \text{ lb ft}^2 \text{ sec}^{-2}$$

APPENDIX A

REFERENCES FOR ROCKET AND SATELLITE DATA

1. References for Rocket Data

- 1.1 Havens, R. J., R. T. Koll, and H. E. LaGow, "The Pressure, Density, and Temperature of the Earth's Atmosphere to 160 Kilometers," Journal of Geophysical Research **57**, 59-72, (1952).
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- 2.1 Groves, G. V., "Effect of the Earth's Equatorial Bulge on the Life-Time of Artificial Satellites and its Use in Determining Atmospheric Scale-Heights," Nature **181**, 1055, (12 April 1958).
- 2.2 Harris, I., and R. Jastrow, "Upper Atmosphere Densities from Minitrack Observations on Sputnik I," Science **127**, 471, (28 Feb 1958).
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- 2.9 Sterne, T. E., B. M. Folkart, and G. F. Schilling, "An Interim Model Atmosphere Fitted to Preliminary Densities Inferred from USSR Satellites," Smithsonian Contributions to Astrophysics, Vol. 2, No. 10, 275-279, Smithsonian Institution, Washington, D. C., (1958).
- 2.10 Sterne, T. E., and G. F. Schilling, "Some Preliminary Values of Upper Atmosphere Density from Observations of USSR Satellites," Smithsonian Contributions to Astrophysics, Vol. 2, No. 10, 207-210, Smithsonian Institution, Washington, D. C., (1958).

APPENDIX B

FORMULAS FOR THE ACCELERATION DUE TO GRAVITY

1. Lambert's Gravity Formula

In Reference 20, Lambert developed a formula which relates the acceleration of gravity to latitude and altitude. The general form of his equation is

$$\begin{aligned}
 g(Z, \varphi) = g_e & \left\{ \left[1 + \left(\frac{5m}{2} - f - \frac{17mf}{14} \right) \sin^2 \varphi - \left(\frac{5}{8}mf - \frac{f^2}{8} \right) \sin^2 2\varphi \right] \right. \\
 & \left. - \frac{2g_e Z}{a} \left[\left(1 + \frac{9m}{4} - \frac{f}{2} + f^2 - \frac{173}{112}mf \right) + \left(\frac{3f}{2} - \frac{5m}{4} + \frac{f^2}{4} + \frac{13mf}{7} \right) \cos 2\varphi \right] \right\} \\
 & + g_e \sum_{n=5}^{\infty} (-1)^{n-1} \left[1 + \left\{ \frac{f}{12} [(n-1)(6-n) - 12] + \frac{m}{24} [36 + n(n-1)] \right\} \right. \\
 & \left. + \left\{ \frac{n-1}{4} \left[(n-2)f - \frac{mn}{2} \right] \cos 2\varphi \right\} \right] \frac{(n-2)Z^{n-3}}{a^{n-3}} \quad (B-1)
 \end{aligned}$$

where

$g(Z, \varphi)$ = acceleration of gravity at altitude Z and latitude φ ,
 g_e = acceleration of gravity at sea level at the equator,
 m = ratio of centrifugal force to gravity at the equator,
 f = ellipsoid flattening,
 a = radius of the earth at the equator.

A body rising directly against the force of gravity would move in a curved path. This "curvature of the vertical" is familiar to geodesists. The vertical at the surface of reference is tangent to this curved path but the extended normal does not give the direction of gravity at altitude above the surface. Equation (B-1) neglects the curvature of the vertical; the first two terms are measured along the normal to the ellipsoid while the remaining terms are calculated for motion along the radius vector.

In a private communication, Doctor Lambert indicates that the difference between the radius vector and the normal, to the surface, is at most 11 minutes of arc at 45° latitude and states that "the difficulty

of pushing my approximations — (too far) — lies perhaps in the conception of altitude." It should be emphasized, then, that the number of significant figures given in Eqs. (7) - (9), page 7, was used to maintain smoothness in the tabulation of gravity and other related quantities.

In the computation of the coefficients for Eqs. (7) - (9), the values of a , m , and f are based on the International Ellipsoid. The "meteorologist's" value of g_e was used instead of the "geodesist's" value to maintain consistency with the abbreviated version of Lambert's formula given in Reference 21. The values used are as follows:

$$a = 6.37838800 \times 10^6 \text{ m},$$

$$g_e = 9.78035600 \text{ m sec}^{-2},$$

$$f = 3.36700337 \times 10^{-3} \text{ (dimensionless),}$$

$$m = 3.46787398 \times 10^{-3} \text{ (dimensionless), and}$$

$$\cos 2\phi = -0.018938074.$$

2. The Inverse-Square Gravity Formula

The well-known inverse-square law for computing the acceleration of gravity at any altitude for a given latitude is

$$g = g_\phi \left[\frac{r_\phi}{r_\phi + Z} \right]^2 \quad (\text{B-2})$$

where

g = the acceleration of gravity at a point in m sec^{-2} ,

Z = the geometric altitude of the point in m ,

g_ϕ = the sea-level value of g at latitude ϕ of the point in m sec^{-2}

r_ϕ = the effective radius of the earth at latitude $45^\circ 32' 33''$.^{5, 23}

This formula was used in the computation of the ARDC tables²⁴ but is replaced by the Lambert formula in this model at the suggestion of some members of the Working Group.* For the altitudes considered in this model, both formulas yield identical values of g to the number of

* Working Group on the Extension to the Standard Atmosphere. See Ref. 25, p. iii.

significant figures tabulated. At an altitude of 300,000 m, the geopotential equation based on Lambert's formula for g yields a value approximately four standard geopotential meters less than that given by the inverse-square law; the "error" increases with altitude and amounts to approximately 70 m' at an altitude of 1000 km. For most engineering applications, the inverse-square law for g with the appropriate effective radius is most adequate.

APPENDIX C Systems of Mechanical Units

Property	Dimensions	METRIC				ENGLISH		
		Absolute cgs	Absolute mks	Gravitational mks		Absolute fps	Gravitational fps	
		1 $F = ma$	2 $F = ma$	3 Type I $F = ma$	4 Type II $gF = ma$	5 $F = ma$	6 Type I $F = ma$	7 Type II $gF = ma$
length (altitude) (scale height) (mean free path)	l	centimeter (cm)	meter (m)	meter (m)	meter (m)	foot (ft)	foot (ft)	foot (ft)
mass	m	gram (gm)	kilogram (kg)	$\text{kg/sec}^2 \text{ m}^{-1}$	kilogram (kg)	pound (lb)	$\text{ft/sec}^2 \text{ ft}^{-1}$	pound (lb)
time	t	second (sec)	second (sec)	second (sec)	second (sec)	second (sec)	second (sec)	second (sec)
force	ml/t^2	dync or gm cm/sec^2	newton (nt) or kg m/sec^2	kilogram force (kgf) m^2	kilogram force (kgf) m^2	poundal (pdl) ft^2	$\text{ft/sec}^2 \text{ lb}$ or $\text{ft}^2 \text{ sec}^{-2} \text{ g}^{-1}$	$\text{ft/sec}^2 \text{ lb}$ or $\text{ft}^2 \text{ sec}^{-2} \text{ g}^{-1}$
area	l^2	cm^2	m^2	m^3	m^3	ft^2	ft^2	ft^2
volume	l^3	cm^3	m^3	m^3	m^3	ft^3	ft^3	ft^3
speed (speed)	l/t	cm/sec	m/sec	m/sec	m/sec	ft/sec	ft/sec	ft/sec
acceleration	l/t^2	cm/sec^2	m/sec^2	m/sec^2	m/sec^2	ft/sec^2	ft/sec^2	ft/sec^2
energy	ml^2/t^2	erg = dyne cm	joule = nt m	kgf m	kgf m	pdl ft	$\text{ft/sec}^2 \text{ lb}$	$\text{ft/sec}^2 \text{ lb}$
geopotential	l^2/t^2	ergs gm^{-1} or $\text{cm}^2 \text{ sec}^{-2}$	joules kg^{-1} or $\text{m}^2 \text{ sec}^{-2}$	$\text{m}^2 \text{ sec}^{-2}$	kgf m kg^{-1} or $\text{m}^2 \text{ sec}^{-2} \text{ g}^{-1}$	pdl ft lb $^{-1}$ or $\text{ft}^2 \text{ sec}^{-2}$	$\text{ft/sec}^2 \text{ lb}$	$\text{ft/sec}^2 \text{ lb}$
pressure	ml^2/t^2	$\text{dyne cm}^{-2} = 10^{-3} \text{ mb}$	$\text{nt m}^{-2} = 10^{-2} \text{ mb}$	kgf m^{-2}	kgf m^{-2}	pdl ft $^{-2}$	$\text{ft/sec}^2 \text{ lb}$	$\text{ft/sec}^2 \text{ lb}$
density	m/l^3	gm cm^{-3}	kg m^{-3}	$\text{kgf sec}^{-2} \text{ m}^{-4}$	kg m^{-3}	lb ft $^{-3}$	$\text{ft/sec}^2 \text{ lb}$	lb ft $^{-3}$
specific weight	ml^2/t^2	$\text{gm cm}^{-2} \text{ sec}^{-2}$	$\text{kg m}^{-2} \text{ sec}^{-2}$	kgf m^{-3}	$\text{kg m}^{-2} \text{ sec}^{-2}$	lb ft $^{-2} \text{ sec}^{-2}$	$\text{ft/sec}^2 \text{ lb}$	lb ft $^{-2} \text{ sec}^{-2}$
number density	l^{-3}	cm^{-3}	m^{-3}	m^{-3}	m^{-3}	ft $^{-3}$	ft $^{-3}$	ft $^{-3}$
collision frequency	$l^{-1}t^{-1}$	sec^{-1}	sec^{-1}	sec^{-1}	sec^{-1}	sec $^{-1}$	sec $^{-1}$	sec $^{-1}$
viscosity	$ml^{-1}t^{-1}$	poise or $\text{gm cm}^{-1} \text{ sec}^{-1}$	$\text{kg m}^{-1} \text{ sec}^{-1}$	kgf sec m^{-2}	$\text{kg m}^{-1} \text{ sec}^{-1}$	lb ft $^{-1} \text{ sec}^{-1}$	$\text{ft/sec}^2 \text{ lb}$	lb ft $^{-1} \text{ sec}^{-1}$
kinematic viscosity	l^2/t	$\text{cm}^2 \text{ sec}^{-1}$	$\text{m}^2 \text{ sec}^{-1}$	$\text{m}^2 \text{ sec}^{-1}$	$\text{m}^2 \text{ sec}^{-1}$	ft $^2 \text{ sec}^{-1}$	ft $^2 \text{ sec}^{-1}$	ft $^2 \text{ sec}^{-1}$
		used by physicists	used by electrical engineers and physicists	used by English-speaking aerodynamicists			used by American aerodynamicists	used by some mechanical engineers

† At sea level and at a latitude of $45^\circ 32' 35''$ the numbers associated with these units will be only 1/9.80665 (exact) as large as numbers associated with corresponding units of system 2.
 †† At sea level and at a latitude of $45^\circ 32' 35''$ the numbers associated with these units will be only 1/32.17404855 as large as numbers associated with corresponding units of system 5.
 ‡ For the absolute-foot version of gravitational units as used in this model, the same ratio applies at all altitudes.

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